



THE "TRAPDOOR" SPRINGFIELD

From the Little Bighorn to San Juan Hill

JOHN LANGELLIER





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Series Editor Martin Pegler
Illustrated by Steve Noon & Alan Gilliland

To “The Three Wise Men”: Douglas C. McChristian, Hayes Otoupalik, and
John F. “Jack” Sukey

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INTRODUCTION

In April 1861 a substantial number of Southerners contended they had the right to secede from the Union that came into being when the United States had been born under the Federal Constitution. The election of Abraham Lincoln to the presidency contributed to 11 Southern states declaring their independence from the federal government, and establishing the Confederate States of America. Bombardment of the US garrison at Fort Sumter located in Charleston, South Carolina's harbor and clashes elsewhere set ablaze the powder keg of civil war.

For the next four years "Yankees" and "Rebels" slaughtered each other in staggering numbers. Massed musketry employing shoulder-to-shoulder ranks reminiscent of the Napoleonic Wars cut down swaths of men wearing both blue and gray. Regrettably, technology outstripped tactics. Among other things, soldiers of the mid-19th century (unlike most of their counterparts under the "Iron" Duke of Wellington and "The Little Corporal" – Napoleon) brandished rifles. Although muzzle-loaders still dominated, rifled long-arms were more accurate and more deadly than in the past, particularly with the invention, improvement, and introduction of the brainchild of a French officer, Capitaine Claude-Étienne Minié, the so-called Minié ball – an elongated lead bullet, with a conical iron depression in the base, which upon firing expanded to fit tightly into the grooves of the rifling. While the Frenchman's original design employed a wedge in the cavity, an American named James Henry Burton simplified the bullet during the late 1840s and early 1850s, deleting the wedge and relying on the slug skirt to expand by pressure, thus engaging the rifling. With this improvement, these bullets – contained in paper cartridges propelled by 2Fg black powder from rifles sighted at 300yd with a maximum range of 1,000yd (albeit of dubious accuracy at that distance) – meant a practiced shooter could load the .58-caliber percussion musket rapidly to deliver lethal fire with dreadful results.

The percussion cap – a small copper miniature "bucket" filled with a combustible mixture used to ignite the charge in the rifle – added a step to the eight movements required to load and discharge a musket. One effort to eliminate this part of the process was the Maynard mechanical device

incorporated within the lock plate to hold a coiled metallic roll treated with explosive material. Other innovations included many fixed-cartridge, single-shot breech-loaders such as the Sharps as well as tube-fed Spencers and other “repeaters” that included magazine models such as the Henry; according to soldier lore of the time, the last-named lever-action weapon, after being loaded on Sunday, was supposedly capable of firing all week! In turn, Confederate Colonel John Mosby reportedly said of the Spencer: “They can wind up on a Sunday and shoot all week” (quoted in Wilson 1992: 14).



The Model 1873 carbine was issued in .45 caliber, as was its rifle counterpart with a solid buttstock. A bar and ring on the left side of the carbine provided the means to secure the weapon when mounted by means of a broad leather strap running from the left shoulder to the right hip. (USNPS Photo, Springfield Armory National Historic Site, SPAR 1719)

As a result of the need to arm Union and Confederate fighting men, a laundry list of carbines and various models for infantry found their way into the hands of combatants in both the Union and Confederate ranks. Some were manufactured in North America while others were obtained from foreign sources. In fact, agents of the two warring powers vied for European imports. Their frenzy to procure tools of war drove up the prices of armaments. What resulted was an array of calibers, makes, models, and types blazing away to inflict casualties along with frustrating the Ordnance Department personnel who had to wrestle with the knotty problem of maintaining a bewildering inventory of non-interchangeable designs that required a dizzying effort to supply replacement ammunition.

A massive surplus of war issue remained after demobilization. Some stocks were eventually sold. Remaining weapons, accoutrements, uniforms, and mounds of other materiel often were sent to the troops, which once again

because of a lack of consistency resulted in logistical challenges. Eventually, instead of wrestling with the mishmash of weapons and ammunition, standardization eliminated the need to juggle so many options. In 1865, a cost-effective proposition to convert surplus rifled Union muskets into breech-loaders not only did away with the logistical jumble, but also ushered in more than two-dozen years of stability when it came to the primary long-arm issued almost universally to Uncle Sam's Regulars from 1866 through the early 1890s.



DEVELOPMENT

A breech-loader for the United States Army

EARLY BREECH-LOADERS

During the early Victorian era the US Army started on a long circuitous road toward adoption of a breech-loader as its combat arm. In 1833, the establishment of the Regiment of United States Dragoons, followed by the organization of a second brother regiment in 1836, gave rise to some of the earliest efforts to achieve this goal. Both units would receive Hall carbines of various models that featured a breech block which flipped up by means of a lever permitting the insertion of a paper cartridge, followed by the next step of placing a percussion cap on a nipple preparatory to discharging the weapon. In theory this short arm could be fired from horseback or on foot.

Over the next quarter-century uneven efforts to find a more suitable breech-loader resulted in Government procurement of options other than the Hall, most notably a variety of Sharps especially in carbine form for mounted troops. After the American Civil War erupted, Sharps would be joined by a litany of other fixed-cartridge, single-shot breech-loaders made by manufacturers such as Ballard, Gallagher, Howard, Joslyn, Laidley-Chick, Lee, Palmer, Peabody, Phoenix, Remington, Starr, Warner, Wesson, Whitney, and Williamson. There also were the “repeaters” and magazine models from makers ranging from the relatively obscure Ball, Evans, and Tripllett & Scott to the better-known Spencer and Henry.

With the conclusion of the four-year struggle, vast quantities of these arms remained on hand. For practical and economic reasons the surplus stocks would be issued to the men remaining in uniform in the post-1865 US Army. In late 1865, however, this large inventory became the subject of a board of Army officers who reviewed samples not only of firearms on hand in the arsenals and armories, but also numerous small arms domestically manufactured and by foreign suppliers, as well as those produced by the Army’s own Springfield Armory in Massachusetts. They also deliberated

based on considerable knowledge of initiatives and recent activities that were taking place across the Atlantic.

No doubt the board and others had been privy to some of the early experimental “needle guns” such as the brainchild of Jean Samuel Pauly, a Swiss gunsmith, who while in Paris during 1808, teamed up with French gunsmith François Prélat. Pauly produced the first fully self-contained cartridge consisting of a copper base integrated with a mercury fulminate primer, thereby paving the way for a wave of breech-loaders that sprang from such fertile minds as the German Johann Nicolaus von Dreyse; after 1836 large numbers of Dreyse breech-loaders were manufactured at the arsenals at Spandau and Danzig. Three decades later this weapon proved decisive at the pivotal battle of Königgrätz during the Austro-Prussian War of 1866. Soon thereafter, in 1867, the Russians adopted a similar weapon invented by Friedrich Christian Carl. Some 215,500 rifles of the “Carl” system were made, but their lifespan was short because of advances made in the field of metallic cartridges that would be chambered in the **Berdan rifle** and other new long-arms.



A Remington carbine provided by Paul Milbury Military Historical Arms and Antiques. While vast supplies of muzzle-loading muskets remained in US Army ordnance stocks after the Civil War, breech-loaders including the Remington carbine for cavalrymen and its counterpart for infantry, who sported rifles, continued to be sent to troops stationed on the frontier into the early 1870s.

Meanwhile, Frenchman Antoine Alphonse Chassepot, who had experimented with breech-loaders, was rewarded when his nation adopted the fruits of his labor as its standard service weapon in 1866. That same year ushered in the British .577-caliber Snider-Enfield that drew from American

Jacob Snider's action, adapted to the existing Pattern 1853 Enfield muzzle-loading rifle.

ALLIN CONVERSIONS

Similarly, and prior to several of these European initiatives the US Army board of 1865 selected a relatively simple concept submitted by Erskine S. Allin, the master armorer at Springfield Armory and somewhat of a fixture there, having started his tenure in 1847 and along with the US Army's proactive and influential Chief of Ordnance, Brigadier General Alfred B. Dyer, played a major role in post-Civil War weapons system development. The concept was simple: Allin proposed modification of surplus .58-caliber Model 1861 percussion rifle-muskets. In his United States Patent No. 49,959 (September 29, 1865), Allin succinctly described his plan as one

particularly adapted to the alteration of the Springfield rifle-musket, (or any other) as it can be done without changing the features of the musket or without throwing away any of its parts. All that is necessary is to cut away the barrel on the top at the breech and add the block and shell extractor, cut the recess in the breech-screw, and modify the hammer. All other parts remain the same.

Adding a breech block which flipped up for loading, while simultaneously ejecting the spent cartridge, gave rise to the nickname that ultimately became associated with the rugged rifle and later carbine versions after the late 1870s, although it was originally nicknamed by some as the "needle gun" because of its relatively long firing pin. The ammunition itself remained .58 caliber of a rimfire type. With War Department approval, some 5,000 of these Model 1865 "First Allin" conversion rifles became available, and as would be the case for this model and all future rifle models weighed approximately 10lb (later carbines averaged 9lb). This development offered many advantages, not the least being of a fiscal nature, in that modifying existing stock was less expensive than producing or procuring an entirely new weapon. Also, because Allin was a Government employee, no fees had to be paid to a civilian patent-holder for permission to use the design.

Once the weapon was delivered for field use, certain shortcomings became obvious. While the various cost-saving efforts that underpinned Allin's system had merit, certain weaknesses existed, such as the method of extraction and the relatively poor quality of some of the early cartridges, that had to be addressed in the future. Based upon data derived from early use, a

“Second Allin” pattern came into being as the Model 1866. This weapon featured an improved action and utilized a .50-caliber, inside-primed, centerfiring cartridge with a 450-grain lead bullet sent toward its target by 70 grains of 2Fg black powder. The new, smaller-size caliber was made possible by reaming the old barrel and sleeving it with a rifled liner of the correct dimensions.



As shown by this Model 1884 trapdoor in the Hayes Otoupalik collection, Allin's simple but effective breech mechanism ejected the spent cartridge case when opening.

Production followed despite some opposition from a few officials in Washington, DC. The Model 1866 went to the field. Changes continued. For instance, a shortened two-band variation – sometimes erroneously referred to by some collectors and enthusiasts as the “Third Allin Conversion” – was produced in 1866, seemingly in small numbers (about 1,000). The lesser length was achieved by cutting down the barrel by 4in, perhaps as a means to remedy bursting muzzles that had occurred on longer models. Likewise, the stock and ramrod were reduced accordingly. Better receivers characterized the next two .50-caliber models, produced in 1868 and 1870 respectively. Among other changes the Model 1868 rifle was 4in shorter than its Model 1865 and Model 1866 predecessors, but only had two barrel bands. The Model 1870 measured 51.8in overall with a 30.6in barrel. It featured a breech block stamped with “U.S.,” crossed arrows, an eagle head, and the date “1870,” and a brass front-sight blade. Between 1868 and 1870 approximately 51,389 Model 1870 rifles were produced, all with bright finish, and with an improved blade-type cartridge extractor introduced on the previous model, patented by the inventive US Army officer Anson Mills.



Like the Model 1865, the “Second Allin Alteration” (Model 1866) rifle was a modified Union musket firing .50-caliber copper centerfire cartridges. Likewise, improved sturdier, less-complex actions than the previous design were adopted. This example is in the collection of Hayes Otoupalik. (Photo by William R. O'Donnell)

The first trapdoor carbines were the previously mentioned prototypes made up in 1868. The Model 1870 carbine, which went into production for field testing, was chambered for .50-caliber black-powder centerfire cartridges with a 55-grain powder charge (aka .50-55), although the rifle round also could be fired. It measured 41.1in in overall length and consisted of a black-walnut 29.9in half-stock and a 22in barrel with three lands and grooves. A single band held the barrel to the stock. A metal bar and ring on the left wrist allowed attachment to a carbine sling hook so that the trooper could retain his weapon for easy access while mounted. The total weight was 7lb 15oz, but beside the smaller size the basic firearm resembled its infantry counterpart,

including the adjustable leaf-style rear sight with graduations up to 700yd. Unlike the rifle, however, the carbine's finish occasionally differed from bright to some components being blued. Furthermore, the breech block bore only the "U.S." and "1870" markings without the eagle head and crossed arrows. In total, only 341 Model 1870 carbines were produced.



During 1869 and 1870 an "Ordnance Board on Tactics, Small-arms and Accoutrements" was convened. Among their suggestions was a trial Model 1870 carbine for cavalry use. The example shown here is in the Hayes Otoupalik collection. (Photo by William R. O'Donnell)

Additionally, a trio of .50-70 wrist-breaking pistols, each measuring 18in in length and weighing a whopping 4.5lb, were manufactured as prototypes. The fact that the lieutenant general commanding the US Army, William T. Sherman, fancied such a horse pistol caused Armory personnel to comply by crafting three specimens in 1869, although none of these impractical beasts found their way into the hands of troops.

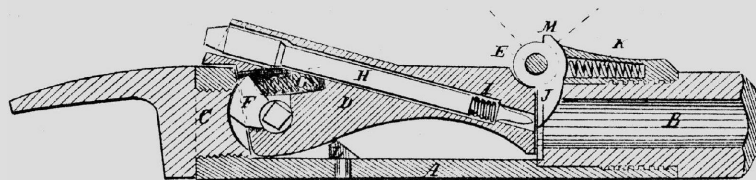


Springfield Armory master armorer Erskine S. Allin conceived of a cost-effective means to convert surplus Civil War muzzle-loading .58-caliber muskets into breech-loaders by cutting away the breech and inserting a flip-up block that could be coupled with a metallic rimfire cartridge for loading and rapid reloading. Latter-day collectors have dubbed the original Model 1865 effort the "First Allin Alteration." This example is in the collection of Hayes Otoupalik. (Photo by William R. O'Donnell)

The Allin system

Master armorer Erskine S. Allin sought economy and simplicity when he proposed his new breech-loading rifle. The latter goal proved extremely important in that many soldiers after 1865 were unfamiliar with breech-loading weapons, or in numerous instances had little to no experience with any firearms. Consequently, what was required was a rugged firearm that was easy to maintain and load. Allin's design fulfilled all these requirements, especially the last element – ease of loading. Unlike muskets of the Civil War that required several steps to fire and reload, the use of this new weapon was considerably less complex. The soldier simply placed the hammer on half-cock, used the large thumb lever on the side to flip open the breech block, and if he had not already done so removed a metallic cartridge from its pouch or box (and eventually belts that emerged to replace these leather accoutrements), inserted the cartridge, closed the breech securely, brought the weapon to the shoulder, pulled back the hammer to full cock, took aim using one of the various sighting devices standard with each model, and squeezed the trigger to fire. To reload he repeated the process which included a small internal extractor that automatically popped out the spent casing, thereby allowing the next cartridge to be inserted.

In the heat of battle rapid firing and reloading might be facilitated in a number of ways, such as taking out several cartridges and placing them in between the fingers of the right hand, or if in a prone or other similar position spreading out cartridges on the ground or a haversack. The latter expedient could have drawbacks, such as scattering the cartridges about or picking up dirt and debris that could be introduced into the breech. This possibility, along with jamming because of fouling, or in some instances the poor quality of the cartridge-case metal that occasionally meant the extractor ripped past the lip at the back end of the copper cylinder, entailed ceasing fire to dislodge the obstacle. Ultimately the US Army provided a small broken-cartridge tool to address this irregularity.



A cross-section schematic depicting the breech block, Erskine S. Allin's basic concept adopted in 1865. The legend reads as follows: (A) receiver; (B) barrel; (C) breech screw; (D) breech block; (E) hinge pin; (F) cam latch; (G) cam latch spring; (H) firing pin; (I) firing pin spring; (J) extractor; (K) ejector spring; (L) ejector stud; (M) extractor point.

A NEW CALIBER

Still not satisfied with the results to date, in 1872 the Army convened yet another armament board, headed by the Ordnance Department's Major James G. Benton, to settle the question as to what weapon the US soldier would adopt as his standard. War Department Special Order No. 107 (May 7, 1872) called for the officers convened by this directive to oversee "a series of experiments with a view toward the proper caliber for small arms." They were to consider .40-, .42-, and .45-caliber specimens and compare them with the .50 caliber.

A second board, summoned soon thereafter by Department Special Order No. 58 (June 28, 1872), was headed by Brigadier General Alfred Howe Terry, whose mandate was the selection of "a breech-loading system for muskets [rifles] and carbines." Over 100 domestic and foreign examples were considered, but the board soon reduced that number to 21 types. Further testing pared down the contenders to only a half-dozen types. At this point, the remaining six weapons were modified to chamber a .45-70-405 round, which the Benton board had recommended, in a three-land, 22in-twist barrel which measured 32.5in. After final testing, on May 5, 1873, the Terry board concluded the Allin-style action should be adopted. Secretary of War William Worth Belknap concurred 15 days later, along with approving .45 caliber as standard based on the contention that the stopping power of this caliber compared favorably with that of the former .50-caliber rounds.



Ammunition types from the collection of Hayes Otoupalik. Top row, left to right: .58 Allin 1865 cartridge; .50-70 Benet inside-primed copper cartridge; .50-45 Benet Carbine; .45-55-405 Carbine Benet Rifle. Bottom row, left to right: .45-80-500 Berdan Marksman primed copper cartridge; .45-70-500 Berdan brass cartridge; .45-70-500 Berdan tin-plated rifle cartridge; .45-95-405 Berdan tin-plated carbine cartridge; 20-gauge forager shotgun tin-plated shell. (Photo by William R. O'Donnell)

The adoption of .45 caliber as standard meant cartridges of that size were to be issued for the rifles and carbines using the Benet internal priming system (so dubbed for Stephen Vincent Benet, Chief of Ordnance 1874–91 and grandfather of the famous poet of the same name) and a drawn case consisting of heavy copper content. The bullet weighed 405 grains while the powder charge remained 70 grains for the rifle, with a muzzle velocity of 1,350ft/sec and muzzle energy of 1,590ft-lb. The carbine cartridge continued to be 55 grains. These specifications were the norm until 1882, when a 500-grain bullet was prescribed for the infantry rifle. Simultaneously, a “Boxer”-

style external primer supplanted the Benet priming. While these upgrades proved beneficial, including enhancing range to some degree, in the end it was the capability of the shooter that mattered. Only the best marksman could boast an 8.5in deviation at 500yd, and even then the US Army's top shots often had the advantage of custom-made rifles from the Springfield Armory (see pages [70](#) and [72](#)).

THE MODEL 1873

Some time passed until actual manufacture and issue occurred, but Model 1873 rifles and carbines gradually reached the troops. With that, the .45-70 Springfield Model 1873 began its long career as the predominant small arm of the US Army. Indeed the American martial hierarchy would embrace the basic Allin design for more than a quarter-century – unlike the British, who set aside the Snider-Enfield for the Martini-Henry – albeit with subsequent adjustments and additions made during the decades of use. With bluing of barrels and case hardening of receivers for rifles and carbines issued from the early 1870s, the problem of bright metal parts rusting had been all but eliminated. Further, the relatively tight breeches and the adoption of metallic cartridges made the Springfield pretty much impervious to the elements. For all intents the simple Springfield proved an all-weather weapon, which was relatively impervious to dust and dirt, serving equally well in the searing heat of the deserts along the border that ran between the United States and Mexico, and in the freezing Great Plains of the far north.

A manual written by J.G. Benton and H. Metcalfe entitled *Description and Rules for the Management of the Springfield Rifle, Carbine and Army Revolvers* set forth some of the differences between the Model 1873 and earlier trapdoors. An excerpt from the manual contained the following description:

The “Springfield Rifle Caliber .45” is essentially similar to the “Springfield Musket, Model 1870,” which for some time past has been in the hands of the troops for trial. The following changes have been made:

- 1st. The barrel has been made of low steel instead of iron, and the caliber has been reduced from .50” to .45”. The rifling consists of three plain concentric grooves equal in width to the lands, .005” deep, with a uniform twist of one turn in twenty-two inches.
- 2nd. The lock plate has been reduced in thickness and has no bevel on the edge.
- 3rd. A rounder shape has been given the hammer.
- 4th. The heads of the tang screw, tumbler screw, and side screws have been rounded off, and the side screws have been slightly shortened.

- 5th. A screw has been substituted for the rivet of the guard bow swivel.
- 6th. The shape of the rear sight has been changed, and it has been set further forward on the barrel.
- 7th. The metal parts of the rifle have been browned or blackened.
- 8th. The stock has been rounded off near the lock plate, and on its upper edges, as far forward as the lower band.
- 9th. A number of cannelures have been cut near the small end of the ramrod, in order to give a better grip to the fingers in using it.
- 10th. The shape of the upper bank of the gun sling swivel has been changed, and an open or stacking swivel has been added for the purpose of stacking arms without using the bayonet ... (Benton & Metcalfe 1874: 1)



Consisting of all-new components and in a reduced .45 caliber, the Model 1873 rifle would serve as the bedrock of all future versions of this rugged weapon that from 1873 through the 1890s was the mainstay of the US Army, Navy, and Marine Corps. The two barrel bands are evident here, the front one having the addition of loops to accept the leather sling while the trigger guard had a similar attachment for the rear of the sling. (USNPS Photo, Springfield Armory National Historic Site, SPAR 1364)

One other minor detail came about on the new rifle in that the lock plate featured a spread eagle and the stamping “U.S. SPRINGFIELD 1873.” With the adoption of the Model 1873, several years elapsed before major changes took place, although subtle differences in markings and some experimentation continued, such as the Metcalfe attachment (see pages [66](#) and [67](#)). Among the reasons for these modifications the breech block and cam system changes came about to provide improved functioning, while altered sights theoretically enhanced accuracy and this first use of bluing on metal parts offered rust protection.



Two details of a second-type Model 1873 carbine in the Hayes Otoupalik collection. The image above shows the front band, while the image below shows the rack number, used to maintain inventory control. The theft of weapons by deserters presented a considerable problem on the frontier. (Photos by William R. O'Donnell)



A .50-caliber Model 1865 cadet rifle in the Hayes Otoupalik collection. With the adoption of the Model 1865 and subsequent models, West Pointers and other cadets received a scaled-down version of the standard infantry rifle. (Photo by William R. O'Donnell)



Like rifles and carbines for combat troops, the first models of rifles also evolved for those issued to cadets and the US Military Academy and other military training schools, such as this Model 1879 cadet rifle from the collection of Hayes Otoupalik. (Photo by William R. O'Donnell)

Cadet rifles, officer rifles, and fowling pieces

There were two types of cadet rifles, the Model 1866 and Model 1869, which were scaled-down versions of the standard infantry issue. The first had a sleeved barrel measuring 33in overall with three right-hand-turn grooves, and fired a .50-caliber cartridge with a 430-grain bullet and a 55-

grain powder charge. The lock plate bore the date “1867” with a total of 424 being made in that year and the next. The 1869 replacement was produced in far greater quantities, with Springfield Armory producing nearly 3,500 between 1871 and 1872. The basic design was that of the Model 1868 standard infantry rifle but was 3in shorter than the full-sized arm. Manufacture with somewhat minor alterations continued until 1893, the last year of production. By that time approximately 25,000 cadet rifles had been made for the US Military Academy and other military schools.

An effort to standardize weapons for officers came about in 1875. For several years officers had made requests for custom rifles to be provided by Springfield Armory, which led the Chief of Ordnance to halt the piecemeal output. Instead, a specific sporting-type design, the Model 1875, was approved. This handsome product, arguably one of the finest to be crafted at Springfield Armory, featured a hickory wiping rod, checkered walnut half-stock, engraved fixtures, a globe rear sight, and several other distinctive elements. Between 1875 and 1885, 477 were made for private purchase, with an original price of \$36 per rifle during the early phases of availability and cost increases over the next decade.

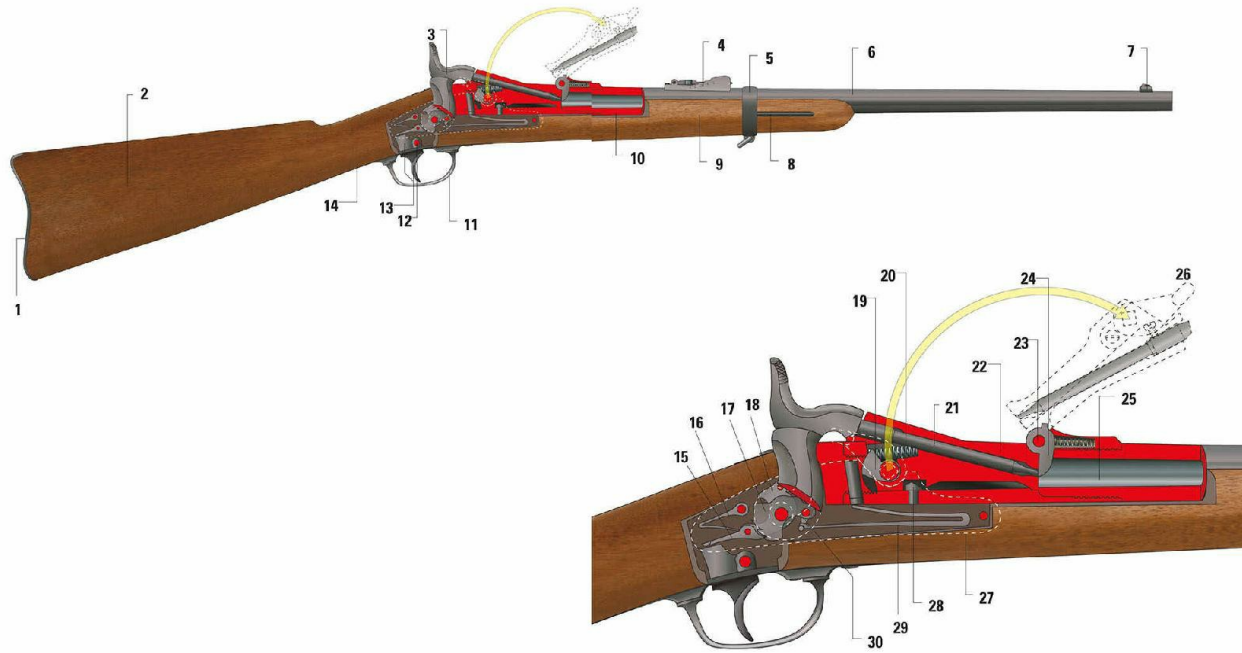
Although the Ordnance Department concentrated on the production and improvement of combat armament, one nod to another purpose arose in 1881 when a 20-gauge shotgun, designated the Model 1881 or Springfield Forager, was made available for hunting purposes. The Army’s rather monotonous and sometimes meager rations, especially in the field, made the introduction of this fowling piece a welcome addition. In 1881, 1882, 1883, and 1885 the Government turned out a total of nearly 1,400 Model 1881s produced from obsolete components, musket stocks with filled-in ramrod channels, and breech blocks inscribed “1881” in italics.



Beginning in 1875 Springfield started to manufacture ornate officer’s rifles in three distinct versions, such as this Type 1 from the 1875–76 period and carried by Major Thomas Tipton who was destined to die in a clash with the Utes during 1879. (Wyoming State Museum, Department of State Parks and Cultural Resources)

THE TRAPDOOR EXPOSED

.45-70-405 Springfield Model 1873 carbine



1. Butt plate
2. Butt
3. Hammer
4. Rear sight
5. Barrel band with stacking swivel
6. Barrel
7. Front sight
8. Barrel band spring
9. Stock
10. Barrel with screw thread
11. Trigger guard
12. Trigger hinge
13. Trigger
14. Guard plate
15. Sear
16. Sear spring
17. Tumbler (shown semitransparent)

18. Bridle
19. Cam latch
20. Cam latch spring
21. Firing pin
22. Breech block
23. Hinge pin
24. Extractor
25. Chamber
26. Mechanism raised
27. Lock plate (outlined)
28. Ejector stud
29. Mainspring
30. Mainspring swivel

IMPROVING THE MODEL 1873

After an officer's model came into being in 1875, renewed efforts were made to enhance the enlisted-men's issue weapons. These alterations came about as a result of several years of field use that led to improvements of earlier designs. For instance, the wrist of the stocks proved fairly weak, a shortcoming that was addressed during 1877 by extending the buttstock comb (the rear end of the stock) and thickening the wrist itself for carbines and rifles alike. Moreover, the top of the breech block thereafter would read "U.S. MODEL 1873" while the lock plate would no longer bear a date, but simply exhibited the American eagle and the words "U.S. SPRINGFIELD" on two lines. A new sight replaced the previous four-steps style that was a curved ramp type graduated for 500yd. Rifle models displayed an "R" on the left side. Early-production serial numbers started around 75000, and retained the dated lock plate. Beginning with serial numbers approximately in the 80000 range, the date was omitted.

In turn, a "C" distinguished carbine sights that had 600yd numbering. This cavalry weapon likewise featured a new butt plate with swivel closure that when swung open revealed a channel bored into the wood butt large enough to hold a three-piece, screw-together rod. This rod functioned as a means both to clean the weapon and to dislodge a cartridge that had failed to eject. Similar updates coincided with those implemented for mounted troops.

Because the Model 1877 was somewhat of a transitional model, some specimens retained the “1873” date on the lock plate.

By 1878 some additional modifications were made, such as a widened rear barrel groove to facilitate the enlarged receiver that was being adopted, with a longer breech block; as was the case for all the 1873 and later issue, these were case hardened, as was the barrel tang. The less-pronounced arch of the breech block slightly added to the weight and presumably the strength of the component. Moreover, a relatively more continuous curve was initiated for the sight base, and for the rifle a streamlined ramrod was inaugurated, with a smaller head and a slot for cleaning cloth, omitting the grooves found in the former pattern.



Early-model Springfields had a 9.25in comb for both carbines and rifles (below) as shown here, but longer (above) 10.62in combs on the stock behind the receiver were produced between serial numbers 70000 and 72000. (Courtesy Glen Swanson)

A year passed before the next round of alterations appeared. During 1879 the superfluous stacking swivel on the carbine band that held the barrel to the stock forearm was done away with, the receiver was thickened on both carbines and rifles, and some of the weapons were given ribbed triggers rather than smooth ones. Despite these modifications the Ordnance Department retained the “Model 1873” designation as indicated by stampings on the block.

Another initiative that began in 1879 was the output of long-range rifles (see pages [70](#) and [72](#)). This practice continued through 1882, originally for

men participating in the marksmanship program. Customizations – such as bull rear sights; various patterns of pistol grip and trigger shapes, some with serrations; thumb rests in the stock’s wrists; and Hotchkiss buttstocks – were among the special features. Serial numbers ranged from 114000 to 163000, although 160000 numbers are found in the greatest profusion. Moreover, six-land, tight-twist rifling predominated, with typical chambering for the .45-80-500 cartridge. “H./G./R.” or “H./G.” stampings appear on the barrels of these nonstandard pieces.



The first Springfields were fitted with solid-metal butt plates (left). In 1879 the stocks were hollowed out at the butt (right) and fitted with a metal swiveling cover to accommodate a three-piece, screw-together rod (for cleaning purposes and to dislodge a cartridge that had failed to eject) and other tools, thereby bringing about the nickname “trapdoor.” These examples are in the possession of Hayes Otoupalik.

NEW INITIATIVES

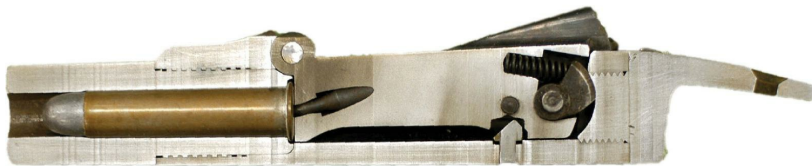
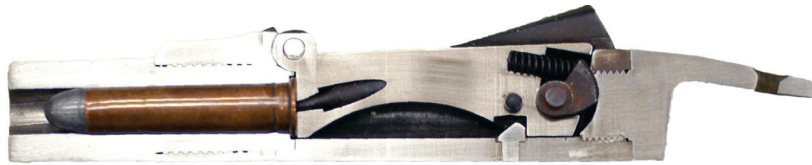
The year 1880 witnessed the introduction of an experimental ramrod-bayonet version of the rifle. With the depletion of Civil War-era bayonets that had been reworked for infantry rifles drawing nigh, a new bayonet was considered, in this case a triangular-rod version mounted in the channel under the stock that served both as a cleaning rod and weapon when advanced. This design had been tried but abandoned for the short-lived, limited-issue Model 1836 Hall carbine that was delivered to some US Dragoons on the frontier. The retaining device presented a challenge, however, on these experimental arms. In addition, the balance changed, thereby impacting on the ballistics of the arm and necessitating a revised front-sight design. These 1880 prototypes also included an oblong trap in the butt similar to that of the carbines in which tools could be stored. Field trials were not favorable and the arms were shipped back to the Ordnance Department to be stored. For the moment the concept was shelved, but it would be resurrected in the near future.



A Model 1879 carbine in the Hayes Otoupalik collection. This model was similar to that adopted a half-dozen years before but among other things had a channel bored in the butt to provide for tools. (Photo by William R. O'Donnell)

The year 1880 also marked another significant milestone, when in June the War Department approved Colonel J.G. Benton's proposal to modernize the Army's stock of trapdoors. Benton advocated the recall of those weapons with serial numbers up to 50000 and their replacement with more modern arms. Noted authorities Joe Poyer and Craig Riesch speculate that the enlarged receiver of 1878 was fitted to the older weapons, with a star marked next to the serial number (Poyer & Riesch 2011: 295). Rather than being returned to the Regular Army, these refurbished pieces apparently ended up in the hands of National Guardsmen and militia; many did not see combat, although that would change in 1898 when the United States deployed forces overseas. Moreover, quantities of older trapdoor components were

subsequently sold into the commercial firearms market by the Ordnance Department (Poyer & Riesch 2011: 301). This economic initiative contributed to the survival of many different specimens of trapdoors far beyond the era when the basic long-arm was the US Army's primary-issue weapon.





Cutaways of breech-block mechanisms for Model 1877 (top pair), Model 1878 (middle pair), and Model 1879 (bottom pair) Springfields revealing the evolution of this key component of the rugged weapon. (Courtesy Glen Swanson)

By 1882, a desire to standardize armament for all combat troops – that is to say artillery, cavalry, and infantry – along with a response to assertions that the carbine version lacked sufficient long-range capability resulted in a “one size fits all” effort of limited duration. Simultaneously, cavalrymen began to receive the more powerful .45-70-500 rifle cartridges rather than the .45-55-405 cartridges as another means to enhance range and accuracy, although this never became standard practice in terms of general issue. Nonetheless, after Custer’s defeat in 1876, the Ordnance Department did recognize that 70-grain ammunition could increase the range of the carbine, although it had a heavier recoil, and approved heavier powder loads for cavalry troopers upon requisition. The reduced .45-55-405 cartridge remained the official carbine load throughout the era, however, with the exception of the experimental 24in carbine that was designed to use the .45-70-500 cartridge. This approach proved more long lasting than the testing of a single design for all three branches. In the end, only 52 prototypes – 26 fitted with a regular ramrod and socket bayonet, and an equal number fitted with a triangular ramrod bayonet akin to that of the Model 1880 rifle – were prepared. It seems field tests of the guns failed to elicit favorable responses, however, and the initiative was not embraced by the rank and file. The telltale characteristics of this limited run of long-arms were contoured sling swivels and rear sights stamped “28B.”



Detail of a Model 1880 rifle in the Hayes Otoupalik collection. Many members of the US military hierarchy continued to embrace bayonets, but a sliding ramrod bayonet – shown here in detail extended – was considered from time to time beginning with the Model 1880. (Photo by William R. O'Donnell)

LATER MODELS

Following in the footsteps of the experimental Model 1882 combined cavalry–infantry rifle with its 28in barrel, the Ordnance Department once again returned to the drawing board. Based on the recommendation of a cavalry equipment board convened in 1884, there was a limited production of 1,000 carbines. About a half-dozen of these Model 1884 carbines were made as prototypes with six grooves in the barrel, the rest having three grooves, but all having a full stock without ramrod channel. The weapon was fitted with a 24in barrel held in place by a barrel band with the sling swivel being reintroduced near the end of the stock's forearm, which was not capped. A sling loop located near the butt plate rather than on the trigger-guard bow allowed for the use of a sling like the infantry, but a slide and ring mounted on the wrist's left side provided an alternative means by which to attach the traditional carbine sling. The butt plate retained the rotating closure for access to the recessed three-piece, screw-together rods.

The on-again off-again attempts to replace socket bayonets with an internal sliding-rod version of the traditional infantry “cold steel” continued into the early 20th century with some early models of the legendary Springfield .30-06, but in point of fact – as proved the case with various efforts related to entrenching tools – never reached a satisfactory conclusion.



Replacement of the traditional triangular socket bayonet with a ramrod version fitted into the channel of the stock below the barrel was a significant feature of the Model 1880 rifle, shown here from the right side with lock plate and hammer. (USNPS Photo, Springfield Armory National Historic Site, SPAR 5790)

A similar fate befell the experimental “three-quarter” stock carbine, in many respects an outgrowth of a short-lived 1882 trial to produce one weapon for both mounted and foot troops. Springfield Armory turned out

some 1,000 of the limited experimental cavalry carbine with 24in barrel, an increase of 2in over the standard models previously provided. For the most part the modification came about in an effort to extend range and accuracy. Like the 1882 trial, these weapons likewise eventually went back to the armory as the US Army moved toward the adoption of magazine weapons.

One more major innovative feature was the “Buffington” folding-leaf rear sight, officially adopted in January 1885; this was mounted in advance of the breech with a stamped “XC” on the base and ladder, indicative of the experimental carbine designation. In fact, although more test models were turned out in 1888 and 1889, the Army never assigned an official model year.

The next step in the continuing refinement of the trapdoor came in 1884 when yet a third permutation of a rod-bayonet rifle was prepared. Unlike the two earlier designs that featured triangular shapes, however, a round rod was added, with an improved mechanism for retaining the rod. Interestingly, unlike most trial runs quantities of this weapon – the Model 1884 rifle – were not issued to Regulars, but instead went to Michigan National Guardsmen.



A Model 1884 rifle in the collection of Hayes Otoupalik. The Model 1884 with ramrod bayonet represented yet another attempt to do away with detachable bayonets for infantrymen. (Photo by William R. O'Donnell)

Additionally, a front-sight cover protecting two versions of the front-sight blade was introduced. The former element was removable with a screw that ran through the base of the cover. The Model 1884 carbine also had this added cover plus a rear-sight guard later designated the Model 1890 Rear Sight Protector, a modification that was an outgrowth of the appearance during the mid-1880s of carbine “boots” in lieu of “thimbles” for cavalrymen; these could catch on the relatively flat “Buffington” sight.

The Model 1888 rifle was yet another round-rod-bayonet rifle and ultimately made in large numbers. Production included some 60,000 specimens between 1890 and 1893, many of which saw service alongside the Model 1884 rifles during the Spanish–American War of 1898 and subsequently in the Philippines.

During the same year, approximately 100 Model 1888 locking-cam rifles were shipped to San Antonio Arsenal in Texas. The intention was to test them in the field, both as a method to prevent spent cartridges from sticking in the breech, which occasionally proved problematic during extensive firing, but more so to address the atypical blowing open of the breech block during firing. This last problem usually arose from user error such as closing the block too rapidly before the cartridge was seated properly, thereby prematurely discharging the round; it also could be attributed to a rusting, worn, or broken firing pin.



Two trapdoor carbines in the collection of Hayes Otoupalik. The Model 1886 with full stock (above) represented a sort of hybrid between cavalry issue and infantry issue on a limited experimental basis, while the Model 1890 (below) returned to the traditional shorter stock running only partially down the barrel. (Photo by William R. O'Donnell)



A Model 1884 carbine in the Hayes Otoupalik collection. This variant featured many improvements over previous models. (Photo by William R. O'Donnell)

Evidently the prototypes were never delivered. Neither was one other weakness of the trapdoor breech block attended to – the occasional breaking of the firing pin – but the experiment did have one significant effect. For nearly two decades during which .45 was the official caliber of the US Army for both long-arms and revolvers, a reduced round was considered, albeit very briefly. Concurrently, black powder was the propellant of choice. When the military began considering a lighter, .30-caliber bullet with smokeless-powder cartridge as a replacement, the previous chamber pressure that averaged 25,000psi increased to nearly double that figure, thereby making the positive cam's higher tolerance an attractive feature. This fact contributed to the production of a very limited number of .30-caliber trapdoor rifles as *The Annual Report of the Army Chief of Ordnance, 1891* indicated:

The success that has been arrived at in the manufacture of the caliber .30 cartridge at the Frankfort Arsenal and the excellent results obtained with the new .30 Springfield single-loader lead the [Ordnance] Department to believe that if the adoption of a magazine arm is deferred the Department may at an early date to commence to furnish the Army reduced caliber arms and ammunition with a satisfactory smokeless powder. (US Army Ordnance Dept 1892: 3.25)



Among other elements the Model 1888 rifle continued to feature the ramrod bayonet, as indicated here in this view of one of the final iterations of the Springfield .45-70. (USNPS Photo, Springfield Armory National Historic Site, SPAR 5529)

REPLACING THE TRAPDOOR

Despite the conclusion reached by the Ordnance Department, for myriad reasons – such as maintaining the in-house Springfield long-arms manufacture, stemming from restrictive congressional legislation – the powers that be no longer supported the status quo. A movement had gained considerable momentum to phase out Springfield trapdoors in lieu of the adoption by the Regulars of a magazine rifle, beginning in 1892 for infantry. In that year, the Army held a competition in which a board of officers compared rifle designs from Lee, Krag, Mannlicher, Mauser, Schmidt-Rubin, and nearly 40 other military and civilian designs with a view to replacing the trapdoor rifle. The trials were held at Governors Island, New York and the deliberations led to a consensus that the Krag was the heir apparent that would topple the reign of the single-shot trapdoor. Some faultfinders charged that hearings by various armament boards for a replacement had stacked the deck in favor of the Ordnance Department's favored choice – the trapdoor. In response, a member of that department (perhaps its chief, Brigadier General Benet) asserted: "Nothing could be more false and absurd than such a belief if it really exists" (quoted in McChristian 2007: 159).

Regardless of the veracity or fallaciousness of such an accusation, the Krag represented only a milestone in more than two decades of seeking a weapon that could hold more than a single round, something that the major European powers had worked toward for some time. During the early 1870s sufficient pushback against the Allin system, as previously mentioned, resulted in an Army board to investigate alternatives, one of which resulted in 10,000 Remington "rolling block" rifles and carbines being manufactured at Springfield Armory under license from the patent-holder. It should be noted that this work represented a carryover from a production run for the US Navy that was issued as the Model 1870.



Trapdoor firing pin in the possession of Hayes Otoupalik. The occasional breaking of the firing pin disabled the usually dependable Springfield trapdoor.

Consequently, by 1871 Springfield turned to the manufacture of its first bolt-action weapon, albeit far from the original bolt-action weapon to see service in the United States. Indeed, the antebellum Greene percussion rifle and the 1862-patented Palmer carbine pre-dated what became known as the Ward-Burton. Springfield rolled out more than 1,000 rifles which had bright 32.4in barrels and just over 300 cavalry carbines with 22in barrels. These prototypes were packed off for field testing alongside trapdoors, Remingtons, and Sharps, all of which had been chambered to fire the .50-70 round, at that time the Government standard. The Ward-Burton met with a negative response when tested in the field. One reply, from Captain Curwen B. McLellan, Company L, 6th US Cavalry, was short and to the point, damningly stating: “Unfit for cavalry service” (US Army Ordnance Dept 1873: 164). Captain Alfred L. Hough, commanding officer of Company C, 13th US Infantry reached a similar conclusion. He stated the Ward-Burton caused a number of accidents for foot soldiers, which he did not specify, but the end result was “the men are afraid of it” (US Army Ordnance Dept 1873:

231). Another 92 commanding officers reacted with similar negative comments about the test Ward-Burtons.



In 1892 the US Army at last adopted a magazine infantry weapon to replace the “trapdoor” with a side-mounted, flip-down loading gate to hold .30-40 ammunition. The Springfield-manufactured Model 1892 *Krag-Jørgensen rifle* was the first in a line of these slow-loading, smokeless-powder firearms that by the mid-1890s also included a shorter cavalry version with partial stock, such as this Model 1896 with saddle ring and slide bar on the left side for use with a carbine sling. (NRA Museums, NRAMuseums.com)

The next attempt in the Army’s quest for a suitable repeating weapon took place just over a half-dozen years after shelving the Ward-Burton, this time a design from earlier in the decade that had been bought by the famed Winchester Repeating Arms Company of New Haven, Connecticut. Referred to as the US Magazine Rifle Model 1878 Hotchkiss, this .45-caliber, centerfire, bolt-action weapon had a tubular magazine in the stock that held five cartridges fed into the chamber when the bolt was used to activate a spring mechanism that pushed the shell into the firing position.



Based on the collaboration of American firearm inventors William G. Ward and Bethel Burton, the Model 1871 Ward-Burton rifle – shown here – and carbine were chambered for the hefty .50 round. (NRA Museums, NRAMuseums.com)

There is a prevalent attitude among some that Custer’s downfall could be traced in part to supposedly superior weaponry employed by Native Americans against his troops such as the Winchester and its Henry lever-action counterpart. Nothing was further from the truth. Although these long-arms had magazines holding between 11 and 15 rounds, as frontier Army historian Douglas McChristian succinctly underscored, these models were

more complex to maintain and repair, typically were produced in a less-potent caliber, and once emptied took time to reload. Additionally, because a soldier carrying roughly 50 cartridges could theoretically fire more than ten aimed rounds per minute, he could quickly use up all his ammunition; this fear plagued some officers of the era (McChristian 1995: 112–15).



Patented by Benjamin B. Hotchkiss, bolt-action Winchester-Hotchkiss small arms were first acquired in limited numbers by the US Navy. The Model 1879 carbine (shown here) was shorter in length, characteristic of designs for mounted troops; rifles had full stocks and longer dimensions. Both types were .45 caliber. Between 1879 and 1880 the US Army ordered 513 of these weapons from Winchester while in 1881, Springfield Armory paid for key components for 500 carbines and 500 rifles to be assembled in house, marrying the components with such on-hand parts as trapdoor barrels, bands, and cleaning rods. Eventually, an improved version was designated the Model 1883. The US Navy procured a slight variant, obtaining 2,500. (NRA Museums, NRAMuseums.com)

Furthermore, the Hotchkiss proved to have a weak stock that could break behind the receiver. Moreover, its mechanism was notably fragile when compared to that of the trapdoor. Even so, experiments with this type of weapon indicated that there were those among the Army's hierarchy who sought a repeater, but congressional mandates requiring the Allin design serve as the mainstay of the military – based in the main on cost considerations – inhibited any change for the moment. That, and the fact that the troops themselves tended to prefer the trapdoor because it met all the requirements of field service, meant that a repeater worthy of replacing the tried-and-proven Springfield remained in the future.

Recommended by the Ordnance Board of 1881–82, the Model 1882 Chaffee-Reece rifle, unlike the Hotchkiss, held a half-dozen .45-70 rounds. A double-ratchet mechanism controlled cartridge advancement and its magazine cutoff offered the option of single-shot performance to conserve ammunition. Only 753 trial models were made for experimental issue to troops in the field; its complex mechanism proved to be fragile – in sharp contrast to the almost

indestructible trapdoor – and it was the least favored after field trials (McChristian 2007: 191).



Invented in 1879, the original design and subsequent Model 1882 Chaffee-Reece rifle had an internal magazine that ran the entire length of the buttstock. (NRA Museums, NRAMuseums.com)



USE

From frontier constabulary to emerging global power

THE US ARMY AFTER 1865

With the end of the Civil War in 1865, the great volunteer army enlisted for that struggle rapidly demobilized. The US Army was to return to a regular organization once more. During the following three decades the Army faced a variety of problems, some old and some new. These included, besides demobilization, occupation duty in the South, a French threat in Mexico, domestic disturbances, Native American troubles, and, within the Army itself, the old awkward relationship between the line and the staff departments. Despite a relative isolation from civilian society during the period 1865–98, the Army developed professionally, experimented with new equipment of various kinds, and took halting steps toward utilizing the period's new weapons technology. In an era of professional introspection, the Army still contributed to the nation's civil progress.

To address these many missions, on July 28, 1866 the US Congress called for restructuring of the nation's Army. Because most of the units which fought under the Stars and Stripes were made up of volunteers, their numbers dwarfed the core of Regulars, consisting of six regiments of cavalry totaling 72 troops, five regiments of artillery with 60 batteries, and 29 regiments of infantry fielding 316 companies, supported by small staff and engineer elements. General in Chief Ulysses S. Grant wanted to increase the size of the Regular Army that remained small during the Civil War (80,000 men). Neither Grant's immediate civilian superior, Secretary of War Edwin Stanton, nor Congress concurred. Instead, lawmakers called for a total of 54,302 officers and enlisted men. Actual strength reached about 57,000 on September 30, 1867, a peak for the whole period until 1898.

Scattered across a vast continent, a thin blue line of Regulars guarded borders from the cold Canadian north where Fenians (Irish Brotherhood)

threatened the peace to the solar south where the dangerous deserts of Sonora and Chihuahua required vigilance; ports and major waterways had to be protected from foreign navies; reconstruction duties demanded Yankees in the vanquished South; and constabulary assignments continued on the frontier west of the Mississippi River much as they had in the antebellum era. The daunting duties facing this miniscule military force overtaxed resources. With another reorganization stemming from congressional legislation in 1869, their many missions proved even more difficult. On March 3, 1869, the infantry was reduced from 45 to 25 regiments by consolidation, whittling down the total strength of the US Army to 45,000, a figure that far exceeded the actual numbers. In fact, for much of the next three decades the force numbered on average 25,000 officers and other ranks.

This restructuring coincided with the adoption of the trapdoor, which for all intents and purposes by the late 1860s had attained status as the long-arm of the frontier soldier who would participate in thousands of engagements – mostly small firefights – through the early 1890s. What followed was more than 25 years of desperate struggle raging over the plains, mountains, and deserts of the American West. Small-scale war characterized by skirmishes, pursuits, massacres, raids, expeditions, battles, and campaigns of varying size and intensity kept tribal peoples and their opponents, in the main troops from the Regular Army, but on occasion militiamen and civilians, in the field. A few campaigns proved devastating to both sides.

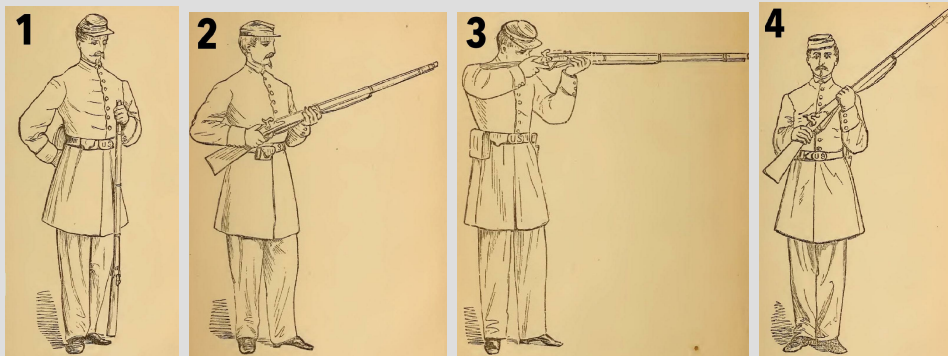


During the immediate post-Civil War period the US Army continued to issue surplus weapons, accoutrements, and uniforms as indicated by the .58-caliber muzzle-loading muskets brandished by these non-commissioned officers from the 18th US Infantry. (Wyoming State Museum, Department of State Parks and Cultural Resources)

To a large degree the officers of the Indian Wars were products of the Civil War. Many brought outstanding conventional credentials to the frontier, but their past martial exploits did not prepare them for a new conflict against an unorthodox enemy. In short, they were ill-equipped for the asymmetrical warfare that would occupy the bulk of traditionally trained troops under their commands.



A private of Company C, 17th US Infantry depicts the immediate post-Civil War era when the vast stocks of accoutrements, uniforms, and weapons, such as the .58-caliber Springfield muzzle-loading musket, were used. (Michael J. McAfee)



Young Union Civil War major general Emory Upton led the charge toward US Army reforms in the late 1860s and early 1870s, including the development of new tactics for all combat arms. He based his manuals for fighting formations on personal experience as a Union officer during the Civil War in which Napoleonic tactics proved outmoded and devastating in terms of casualties. Line drawings illustrated such basic steps as drawing the cartridge from the ammunition pouch (1), readying the rifle (2), aiming (3), and presenting the piece at “arms port” (4).

New tactics

Besides translating the lessons learned from four years in the killing fields of the Civil War when it came to armament, other new courses were charted in the US Army. This included a series of publications that sprang from the fertile mind of former Union major general of volunteers and Regular Army colonel after the end of that conflict, Emory Upton. The reflections of this driven genius resulted in a plethora of writings including a pair of influential works entitled *A New System of Infantry Tactics, Double and Single Rank, Adapted to American Topography and Improved Fire-Arms* in 1867 and seven years later his updated and revised *Infantry Tactics: Double and Single Rank*. These treatises would become virtual scripture and verse soon after they rolled off the presses.

Like several other veterans of that devastating duel between North and South, Upton had witnessed the folly and high cost of traditional combat tactics that drew heavily on the era of Napoleon and Wellington. Upton's wartime encounters with defensive firepower and field fortifications that characterized battlefield conditions during the late Civil War led him to propose tactics suited to the new state of warfare. He also realized the impact of rifled weapons, breech-loading armament that made possible higher rates of deadlier fire and doomed direct frontal attacks against well-prepared defenses. The colonel's response combined dispersion among the offensive forces and concurrent unit cohesion. To accomplish these objectives Upton specified "fours," or four-man squads, as the basic unit in his manual. Once in line of battle, the squad was to disperse and engage, either on the offensive or defense as conditions dictated, deploying in loose tactical formation. Upton's views, including his championing of combined-arms tactics, became official doctrine, his manuals appearing in three editions for artillery, cavalry, and infantry; they were purchased by nearly every Regular officer and many militia organizations made his words de facto dogma. Indeed, during the 1876 campaign against the Plains Indians a large proportion of the operations carried out by Army commanders in the field followed Upton's prescriptions.

In the years after Upton's manuals entered circulation, a convergence of improved breech-loaders, updated tactics, and concomitant training emerged. These served to transform the US Army during the final quarter of the 19th century as it moved from an insular frontier constabulary to an international power deployed around the globe.

THE BOZEMAN TRAIL

The discovery of gold in Montana triggered a rush of miners to the area driven by visions of treasure for the taking; no matter that the region was home to some of the finest light cavalry in the world – people who came to be known and feared by the appellation of Sioux. To reach the riches a route blazed by civilian John Bozeman that ran from Fort Laramie, Dakota Territory on the North Platte River and Oregon Trail, northward along the eastern base of and around the Big Horn Mountains was selected.

Unfortunately, this road ran right through the hunting grounds of the Sioux and their neighbors the Northern Cheyenne and Arapaho, who had promised to refrain from bellicose acts. In turn they had been told their traditional ancestral lands would remain free from white incursion. The words of the 1868 Treaty of Fort Laramie promising traditional lands to the tribes of the region soon gave way to greed for gold.

Red Cloud's War

Not surprisingly, the Native Americans fought to drive out the white invaders, most notably a stalwart Sioux war leader, Red Cloud. He and many others were intent on holding on to their ancestral home even when faced by a show of force. A battalion of the 18th US Infantry under Colonel Henry E. Carrington marched to establish posts along the Bozeman Trail in the Sioux heartlands. Carrington's command of about 700 men departed Fort Laramie during June 1866 for the Bighorn country. Armed with muzzle-loaders left over from the Civil War, they came to establish an outpost in the heart of enemy country that would be named Fort Phil Kearny. Five companies remained there while the other two were sent on another 90 miles to a second proposed garrison at the northern edge of the Big Horn Mountains that would be called Fort C.F. Smith.

Fort Phil Kearny became the focus of enemy attention and during its brief existence remained in a virtual state of siege for several months. After a number of minor engagements Captain William J. Fetterman, who had been brevetted a lieutenant colonel in the Civil War, was anxious to provide a stern lesson to the enemy. He and a fellow supposedly "offered with eighty men to ride through the whole Sioux Nation!" (Brady 1904: 20). This bit of bravado would become prophetic.

Two weeks later, on Friday, December 21, 1866, the woodcutters' detail sent for fuel and building materials at a stand of pines well beyond the fort signaled from Pilot Hill that they were under assault. Carrington ordered 49 soldiers from the 18th US Infantry and another 27 from the 2nd US Cavalry to follow Captain James Powell, a former private who had steadily risen through the ranks after his enlistment in 1848 and now commanded Company C, 18th US Infantry, out of the stockade at Fort Phil Kearny to drive off the most recent Sioux onslaught. Fetterman again asked permission to lead a relief column. He argued that he had seniority and after pleading his case, Carrington succumbed, but emphatically instructed: "Relieve the wood train, drive back the Indians, but on no account pursue the Indians beyond Lodge Trail Ridge" which was out of sight of the garrison (quoted in Potomac Corral 1966: 121). Aware of the captain's reckless nature, the colonel repeated this directive to Captain Frederick Brown, who with a pending transfer to Fort Laramie soon to take him away from the action, secured permission to accompany Fetterman's force. Additionally, Lieutenant George Grummond wanted to join the melee at the head of the cavalry contingent, while a pair of civilians, James Wheatley and Isaac Fisher, tagged along to test their new Henry repeating rifles. These weapons were far superior to the Springfield muzzle-loaders carried by the infantrymen and the Spencer carbines carried by the cavalymen in the detail. Thus, as fate would have it, Fetterman sallied forth with exactly 80 men at his back.

From the outset Fetterman marched to his own drummer. Instead of deploying south of Sullivant Hills where the reports of gunfire could be heard, he headed north toward the hills of the forbidden Lodge Trail Ridge. Once atop the summit he spied a Sioux raiding party. In spite of the similar circumstances from his encounter, once more Fetterman could not contain his impulse to fall upon the ten tantalizing quarries in the valley below. Boldest of the bold, the Cheyenne Big Nose was in this audacious group of decoys who dared the bluecoats to fight. After provocative actions the ten warriors divided into two groups, and crisscrossing they sprang the trap. In a carefully executed ambush a superior mass of Native Americans erupted from hiding. Fetterman and the foot soldiers halted to make a stand, and became separated from the cavalry. The slaughter began, with arrows, knives, clubs, and hatchets doing their bloody work against the outnumbered whites' firearms. In short order they annihilated Fetterman and his entire outfought and

overwhelmed command. Carrington ultimately dispatched Captain R. Ten Eyck to ascertain what had transpired. He bore the tragic news of the slaughter that left none of the 81 would-be conquerors alive. The defeat was complete and one of the worst experienced by the US Army during the Indian Wars.

The Army proved more successful in two other notable actions on the Bozeman Trail, both of which depended on the Allin conversion to avoid repeating Fetterman's fate. During early August 1867 the Native Americans launched separate but apparently coordinated attacks once more against a woodcutters' detail outside Fort Phil Kearny, as well as to the northwest where a party had been dispatched as a haying detail to fetch fodder near Fort C.F. Smith, the next bastion on the road as it turned toward Bozeman City and Virginia City.



These two views of the Model 1866's breech show (above) the closed position for firing and (below) the open position for ejecting the spent cartridge and reloading. (NRA Museums, NRAMuseums.com)

The first encounter adjacent to Fort Phil Kearny was familiar ground to the Cheyenne and Sioux. Now they set their sights on the men led by Powell, who with 19 years of experience in uniform demonstrated better judgment than Fetterman. He carefully divided his 52 men into three details. A non-commissioned officer and a dozen infantrymen reported to the woodcutters' camp in the pines. Another NCO and a dozen men escorted the wood train to and from the fort. At a strategic spot Powell and First Lieutenant John C. Jenness retained control of the remaining 26 soldiers on an open plain where wagon beds had been removed from their running gear to form an improvised fortification. A few of these boxes had 2in slots augured into the sides to provide loopholes while Powell had logs, kegs, sacks of beans and grain along with other items placed inside to act as buffers against enemy projectiles. As an added precaution, blankets draped across the top of the sides hid the whereabouts of riflemen who could slip undetected into the boxes in the event of an attack.

Recently issued Model 1866 rifles offered an added advantage in that theoretically the rate of fire increased from two to three rounds a minute, for the average soldier using a rifle-musket, to about 12 or 13 with a breech-loader. Nevertheless, as William Murphy, an infantryman stationed along the Bozeman Trail, bemoaned, "the government charged twenty-five cents per cartridge to the men if they were short" (quoted in Johnson 1971: 273). Among other factors, such tightfisted practices discouraged target practice, given that the monthly pay for a private during his first enlistment was \$13. This fiscal impact meant personal initiatives to improve skills with a firearm were limited at best and for the most part nonexistent. In addition, as one private in the 18th US Infantry recorded during 1866, target practice under any circumstance presented a problem given that ammunition was in such short supply.

This severe drawback notwithstanding, even less than crack shots enjoyed a certain advantage over troops and foes armed with muzzle-loaders now that Fort Phil Kearny's troops had trapdoors that could be fired more rapidly than rifle-muskets and also did not require a soldier to be upright for maximum efficiency in ramming the paper cartridge and lead slug down the barrel. Thus staunch men armed with rapid-reloading rifles stationed behind wagon boxes removed from their running gear fended off a much larger force of Sioux and Cheyenne for a good four hours, driving off determined mounted and

dismounted attacks by several hundred warriors at various times, with only six soldiers killed and two wounded.

While the Wagon Box defenders withstood the onslaught because of their bravery and the firepower of their trapdoors, 90 miles away the Hayfield Fight was taking place near Fort C.F. Smith, where 19 soldiers and six civilians under Lieutenant Sigismund Sternberg likewise had been equipped with newly issued converted Springfields along with several repeating rifles. They also prevailed against superior odds.

In these baptisms of fire the trapdoor had eventually proved its worth; but even though the two besieged units had stood their ground and inflicted casualties on their valiant attackers, the Government soon called for the removal of military forces in the contested country. The Treaty of Fort Laramie (1868) would set aside the Great Sioux Reservation in Dakota Territory (today's South Dakota); and the Army abandoned the Bozeman Trail, leaving the so-called Powder River region to the Native Americans at least for the next few years until confirmation of gold strikes on their treaty lands again opened the floodgates to miners intent on riches.



The Wagon Box Fight

This plate illustrates the resolute resistance near Fort Phil Kearny on August 2, 1867 as part of the US Army's deployment along the Bozeman Trail to open up the area's rich mineral resources. Against overwhelming numbers of battle-tested Plains Indians led by the valiant, determined Red Cloud, a small woodcutting party of civilians and soldiers from the

18th US Infantry stood their ground behind makeshift fortifications consisting of wagon beds removed from their running gear. Armed with new technology – the breech-loading Model 1866 – plus ample ammunition, a strong defensive position, good marksmanship, and guts, Captain James Powell's plucky command held their own as they faced superior forces of resolute Cheyenne and Sioux. The whites called it the Wagon Box Fight, but the Native Americans who sustained high casualties because of the rapid fire poured into their mounted attacks would dub it the "Medicine Fight" because of "the bad medicine that overcame their own great bravery and sacrifice" (quoted in Potomac Corral 1966: 162).

The Great Sioux War

This new development unleashed a predictable reaction from the tribesmen on the Northern Plains, followed by the response from Washington to ensure the gold seekers would not be harassed. The military planned to deploy a pair of columns, one under Brigadier General George Crook and the other under Brigadier General Alfred Howe Terry from Fort Abraham Lincoln in Dakota Territory. In the main, the enlisted men in both pincer elements were armed mostly with updated Springfield Model 1873 rifles and carbines for foot soldiers and mounted troopers respectively and amply provided with ammunition.

In March 1876 Crook's force left Fort Fetterman, Wyoming Territory, under the immediate command of Colonel Joseph J. Reynolds; the force launched its foray on schedule but returned within a month. Reynolds had entered the valley of the Powder River and surprised a Cheyenne-Sioux camp but failed to press home an initial advantage and withdrew without punishing the Native Americans. Terry's column never took to the field. The abortive campaign was not renewed until the spring, when Lieutenant General Philip Sheridan pressed his subordinates into renewing their attacks, this time with three columns under Brigadier General Crook, Colonel John Gibbon, and Brigadier General Terry directed against the Powder River area. Once again, the principal long-arms were trapdoors, with the cavalry also carrying .45-caliber Colt revolvers.

Terry marched west from Fort Abraham Lincoln in May, his principal element the 7th US Cavalry under Lieutenant Colonel George A. Custer, who incidentally had declined to haul a pair of Gatling guns with his regiment because while these rapid-fire revolving pieces would add firepower in theory, their cumbersome carriages would slow down the march. Earlier, Gibbon had moved east from Fort Ellis in western Montana Territory with a mixed force of infantry and cavalry, while Crook moved north from Fort Fetterman on the North Platte River at the end of May with a force heavily weighted in cavalry. Crook made the first contact. The Sioux and Northern Cheyenne learned of his approach along Rosebud Creek, and 1,500 warriors moved to meet him. Crook had 1,000 men – 15 companies of cavalry and five of infantry – for the most part wielding either the carbine or the rifle version of the trapdoor, plus another 300 friendly Native Americans and

civilians armed with an array of weapons. The two forces met on roughly equal terms on June 17 in heavy fighting. Tactically, neither side carried the field conclusively enough to claim a victory, although arguably the considerable range of the Springfield rifles handled by Crook's infantry helped stave off the disastrous outcome experienced by Custer's column. Viewed from a different perspective, strategically speaking Crook's withdrawal to a supply base gave the Battle of the Rosebud the complexion of a defeat for the Army, especially in view of developments on the Little Bighorn River 50 miles northwest, which his continued advance might have influenced decisively.

While Crook was moving north to his collision on the Rosebud, Terry and Gibbon, marching from east and west, joined forces on the Yellowstone River at its confluence with the Powder River, where a supply base serviced by river steamer was established. Terry sent out the 7th US Cavalry to scout for Native American sign, and Major Marcus A. Reno with six companies (the cavalry company was not called a troop until 1883) reconnoitered up the Powder, across the Tongue River, and into the valley of the Rosebud. Here on June 17 Reno found a fresh trail leading west out of the valley and across the Wolf Mountains in the direction of the Little Bighorn. He was unaware, and was thus unable to inform his superiors, that Crook was also in the Rosebud valley and had been engaged and blocked by a large force of Native Americans not far upstream on that very same day.

Terry held a council of war aboard the steamer *Far West* to outline his plan. Custer's 7th US Cavalry would move south up the Rosebud, cross the Wolf Mountains, and enter the Little Bighorn valley from the south. Gibbon, joined by Terry, would ascend the Bighorn River and its tributary, the Little Bighorn, from the north, trapping the Native Americans between the two forces.

As it happened, Custer moved at least a day early for the cooperative action envisioned in Terry's plan. On June 25, 1876, the 7th US Cavalry crossed the Wolf Mountains and moved into the valley of the Little Bighorn. Custer was confident of his ability to handle whatever he ran up against, convinced that the Native Americans would follow their usual practice of scattering before a show of force and completely unaware that he was descending upon one of the largest concentrations of Native Americans ever assembled on the Plains; perhaps as many as 6,000–7,000 Sioux and

Northern Cheyenne, with as many as 2,000 warriors under such capable leaders as Crazy Horse, Sitting Bull, Gall, Crow King, Lane Deer, Hump, and Two Moon, who would confront Custer in the Battle of the Little Bighorn.

Around noon on this Sunday in June Custer dispatched Captain Frederick W. Benteen leading three companies to scout to the left of the command. This was not an unusual move for a force still attempting to fix the location of an elusive enemy and expecting him to slip away on contact. It is also possible that Custer, knowing the value of the principle of surprise, hoped to catch his foe unawares. At about 2:30pm, still 2 miles short of the river when the upper end of a village came into view, Custer advanced three more companies under Reno with instructions to cross the river and charge the Native American camp. With five companies Custer moved off to the right, still screened by a fold of ground from observing the extent of his opposition, perhaps with the thought of hitting the Native Americans from the flank – of letting Reno hold the enemy by the nose while he, Custer, kicked him in the seat of the pants. As Custer progressed, he rushed Sergeant Daniel Kanipe to the rear to hurry the pack train and its reinforced one-company escort, urging it forward into what soon would erupt into a firefight. Shortly afterward he dispatched Trumpeter John Martin (aka the Italian-born Giovanni Martino) with a last message to Benteen that a “big village” lay ahead and to “be quick – bring packs” (quoted in Matloff 1969: 317) which would have contained important extra ammunition, if the firefight had lasted any length of time, which it did not.

Indeed, the main phase of the Battle of the Little Bighorn ended in something like two hours or less. Reno, charging down the river with three companies and some Arickara scouts, ran into hordes of Native Americans, not retreating, but advancing, perhaps mindful of their creditable performance against Crook the week before and certainly motivated by a desire to protect their women and children and cover a withdrawal of the villages. Greatly outnumbered, suffering heavy casualties, and in danger of being overrun, Reno withdrew to the bluffs across the river and dug in.

In the meantime, Custer and the five companies with him, about 230 strong, moved briskly along the bluffs above the river until, some 4 miles away, they were beyond supporting distance and out of sight of the rest of the command. They were brought to bay and overwhelmed by a Native

American force that heavily outnumbered them. Many troopers were struck down before they could mount a defense, and in the wake of the ignominious debacle a shocked nation, including many in the US Army, questioned the outcome. How could the “Boy General” and his hard-riding, elite 7th US Cavalry be vanquished?

Among the answers was a contention that firearms had played a major role in the Little Bighorn tragedy. Writing just two years after the battle from a fort in Montana that bore Custer’s name, one officer repeated a theory that began to circulate within some elements of the Army. In an unsigned letter published in *The Army and Navy Journal* on November 30, 1878, he wrote:

When our men are engaged in actual combat with a wily foe, it would be nothing more than fair that our government should supply our soldiers with the best rifles and carbines in the civilized world. If we are several years behind in regards to best rifles, it is time for us to wake up and see if something cannot be done to place us on equal footing, not with civilized nations, but with red men themselves.

What this critic and others failed to admit was – as 1st Lieutenant Holmes Offley Paulding, a surgeon who was present to attend to the survivors of the slaughter, noted – “cavalrymen ... as a general thing are about as well fitted to travel through hostile country as puling [*sic*] infants” (quoted in Rickey 1966: 101). The fact was that during the second day of the Little Bighorn fight, officers with Major Reno’s surrounded force had to give permission to their men to fire in order to conserve ammunition as they realized most of the troopers were poor shots. Edward Godfrey, a lieutenant with the 7th US Cavalry, gave credence to this fact when he later recalled seeing one of the men pull “the trigger. There was a perceptible dropping of the muzzle, and a flinch, but no report. He had forgotten to cock his piece” (quoted in Rickey 1966: 101).



As a result of extensive archeological investigations at the Little Bighorn Battlefield National Monument, scientific methods such as ballistic analysis have shed light on this legendary clash. This Model 1873 carbine (serial number 19573), also featured on the front cover, was one of the weapons that tested positive for use at the battlefield and based on the carved name “J. MARTIN” and “H” for his company (see insets) was very likely to have been issued to Trumpeter John Martin who delivered the last message from Lieutenant Colonel George A. Custer imploring Captain Frederick W. Benteen to rush reinforcements and more ammunition to the ill-fated battalion. (Courtesy Glen Swanson)



Kicking Bear’s Springfield trapdoor provides a fine example of use of this weapon by Native Americans who acquired a variety of firearms through barter, purchase, or as prizes of war. (NRA Museums, NRAMuseums.com)



The rather flimsy construction of early stocks caused fracturing, a defect that was remedied with a simple correction on Kicking Bear's weapon by the use of reinforcement and repair with rawhide applied wet to shrink and held in place by brass tacks. (NRA Museums, NRAMuseums.com)

The trapdoor in Native American hands

Unlike the troops they faced, Native Americans could not look to a central support system for the Springfield and other arms they obtained from the whites through diverse means. This meant that innovative methods of reloading ammunition and maintaining or repairing broken weapons relied on the creativity of each warrior. A fractured wrist of a stock could not be sent back to the arsenal for replacement. Wetted rawhide and perhaps glue made from bison and even a bit of stray wire might be wrapped around the break so the hard-to-obtain firearm could continue in service. Also, because the weapon was not government-issue as it was to a soldier, but instead a personal piece of war regalia, it might be decorated with brass trade tacks, carvings, or other additions to distinguish it as the property of a proud fighting man and capable hunter.

Proficiency with armaments of many kinds was a given for most tribesmen who gained honor from valor in warfare and raiding as well as protecting their people, along with providing game to sustain them as a staple of their diets. This is not to say that Native Americans were sharpshooters; most had little or no understanding of the use of sights and accuracy was not very good, especially if fired from a galloping horse, or from underneath the animal's chest as it galloped, which was the practice of many of the Plains warriors.



Reno's skirmish line, 1876

This plate illustrates the initial skirmish line of troopers from the 7th US Cavalry that struck a major encampment of Northern Plains Indians on June 25, 1876 at a place known as the Greasy Grass to the vast village's defenders, and the Little Bighorn River to the invading horse soldiers. The cavalrymen's commander, Lieutenant Colonel George Armstrong Custer, had divided the regiment into three contingents, retaining the main body of five companies under his immediate control and splitting the remainder of his force into two other elements under Major Marcus Reno and Captain Frederick W. Benteen respectively. Reno's battalion was the first to reach the edge of the camp where he dismounted his men in accordance with US Army tactics of the time. One trooper was detailed to take his mount and three others from his four-man squad to the rear while his comrades, who now were afoot, fanned out along with all their fellow troopers to move forward in single file toward their objective armed with their single-shot Model 1873 Springfield carbines, which unlike the contention that their cartridges frequently jammed in the breech, performed well. Unfortunately, Reno's battalion soon stirred up a hornets' nest. Hundreds and hundreds of Native American warriors, perhaps as many as 6,000–7,000 Sioux and Northern Cheyennes, with as many as 2,000 warriors under such leaders as Crazy Horse, Sitting Bull, Gall, Crow King, Lamé Deer, Hump, and Two Moon, confronted the whites. Wielding an array of weapons from bows and arrows to war clubs, lances, and an assortment of firearms including Winchesters, the warriors repulsed Reno's attack. Reno would join Benteen across the river on high ground where the retreating survivors holed up for several days avoiding the fate of Custer and his ill-fated followers, all of whom died after a brief, bloody "last stand."

CONSTABULARY DUTY CONTINUES

In due course, the realization that training, including with firearms, typically was lax at best was critical if the Army was to avoid another Little Bighorn. Small-arms instruction would evolve and by the 1880s many men could boast of their prowess, but at a certain cost. As 7th US Cavalry trooper Clarence H. Allen recalled after coming back from the target range in the late 1880s, he was “black and blue all over the shoulder and down into my chest. I got so I couldn’t help flinching and I didn’t make a very good score” (quoted in Rickey 1966: 104).

A contemporary in the 13th US Infantry echoed this concern when he placed two pair of socks as padding on his right shoulder as a buffer. This helped lessen the impact of recoil, but threw off his score. Regardless of the discomfort, the price was a small one to pay considering the improved abilities of many soldiers that with practice could result in a trooper with a carbine accurately striking a man-sized target at 500–600yd.

Good marksmanship was one important factor in success for the frontier soldier, but another major element was out of the hands of the military. It was good fortune for both the Army and the settlers in the West that the Native Americans rarely acted in concert within or between tribes, although had they done so the Army might have been able to regularly employ large units instead of dispersing troops in small detachments all over the frontier and might also have had better luck in forcing its elusive opponents to stand and fight.

The Red River War

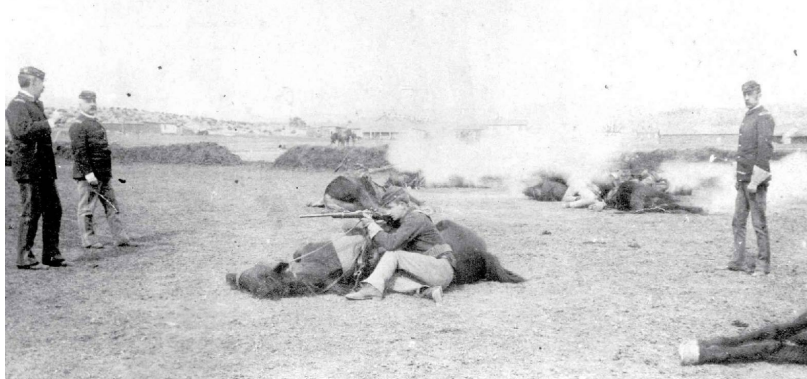
For the most part, however, brief firefights involving small groups of men on both sides were the norm. Examples on the Southern Plains typified the search-and-destroy nature of Western warfare, such as an Army campaign in 1874–75, known as the Red River War. Although the operation involved about 3,000 troops and was launched in five columns, one under the command of Colonel Nelson A. Miles and another under Colonel Ranald S. Mackenzie, from bases in Texas, New Mexico, and Indian Territory against the Texas Panhandle refuge of the Southern Plains tribes, units tended to be dispersed, thereby negating their superior numbers. On September 24, 1874, Mackenzie and the 4th US Cavalry found the winter camps of the Comanche,

Kiowa, Cheyenne, and Arapaho in the deep Palo Duro Canyon on the Staked Plains. Mackenzie's surprise attack separated the Native Americans from their horses and belongings, which were destroyed. The campaign continued all winter and into the following spring, with many Native Americans finally surrendering in desperation and being placed on the reservation.

The Nez Perce War

Similarly, the Nez Perce War of 1877 pitted the Army's far superior numbers against a much smaller but highly adept enemy. In a remarkable campaign that demonstrated the unique capabilities of guerrilla forces and the difficulties that formal military units have in dealing with them, the Nez Perce led the Army on a 1,300-mile chase over the Continental Divide punctuated by a number of sharp engagements. The Native Americans used the terrain to great advantage, fighting when circumstances favored them, sidestepping around opposing forces or breaking contact when the situation dictated it. They lived off the land, while the Army was tied to supply trains that were vulnerable to Native American attack. Their women and children often hindered the Native Americans' freedom of movement, however, and eventually Army superiority in strength and weapons began to tell. Native American rifles were no match for howitzers and Gatling guns, and of course the Springfield trapdoors carried by the Army's infantry and cavalry, who were well supplied with ammunition. Moreover, Native American mobility could not outstrip the Army's use of the telegraph to alert additional forces along the Nez Perce line of flight. The battles of White Bird Canyon, Clearwater, Big Hole, Canyon Creek, and Bear Paw Mountain involved hundreds of troops and numerous units under Major General Oliver O. Howard, Colonel John Gibbon, Major Samuel D. Sturgis, and Colonel Nelson A. Miles.

There were heavy casualties on both sides before Chief Joseph surrendered. Joseph concluded the peace talks with one of the most memorable speeches in Western history. "Hear me, my Chiefs," one Army observer remembered Joseph saying, "I am tired. My heart is sick and sad. From where the sun now stands I will fight no more forever" (quoted in Utley 1973: 323).



Men from the 1st US Cavalry blaze away with their Springfield carbines, their well-trained horses providing protection. (Courtesy National Archives and Records Administration 111-SC-87215)

The Bannock, Sheepeater, and Ute wars

In 1878 and 1879 Army forces took the field against various bands of Native Americans in mountain areas of the Northwest. Operations against the Bannock, Sheepeaters, and Utes were relatively minor. The Bannock War (1878) was the result of settler intrusion on the Camas Prairie in Idaho, where camas roots were a prime source of food for the Native Americans. The Sheepeater War (1879), also centered in Idaho, broke out when the Native Americans were charged with several murders they probably did not commit. The Ute War (1879) in northwestern Colorado grew out of the misguided methods and impractical idealism of Indian Agent Nathan C. Meeker. Regardless of what caused them, however, these wars meant hard campaigning and casualties for both the Army and its opponents.

Facing the Apache

A more desperate clash took place in the Southwest where Apaches continued to number among the Army's toughest adversaries in the Indian Wars. The zone of operations embraced the territories of Arizona and New Mexico, western Texas, and Mexico's northern provinces. Despite the fact that hostile Apaches were relatively few in number and the theater was essentially secondary, they tied down sizable Army forces over a long period of time.



Captain Henry Lawton and his troopers from the 4th US Cavalry wait with their carbines in hand at Bowie Station, Arizona, as they guard Geronimo and other Apache prisoners of war bound for Florida.
(Courtesy National Archives and Records Administration)

Post-Civil War Apache troubles extended from the late 1860s, when the Army campaigned against Cochise, through the 1870s and 1880s, when Victorio and Geronimo came to the fore. On the Army side the important factor was the assignment of Brevet Major General George Crook to the Southwest, where he served two tours between 1871 and 1886. Crook was an able administrator as well as an outstanding soldier and proved to be a relentless opponent of the Native American on the battlefield and a steadfast friend off it. As commander of the Department of Arizona he organized at key locations a number of mobile striking forces under experienced frontier officers and launched them in a concerted campaign supported by mule pack trains. Acting under an 1866 congressional act that authorized the Army to enlist up to 1,000 Native American scouts (they came from traditionally friendly tribes like the Crow and Pawnee or from friendly elements of warring tribes), Crook also employed Apache scouts. Converging columns and persistent pursuit brought results, and he left Arizona in relative quiet when he went to the Department of the Platte in 1875.



This cavalry trooper of the mid-1880s appears ready for combat with his Springfield carbine with front-sight cover. His canvas Mills belt holds improved Berdan-primed cartridges.

The quiet in the Southwest did not last long. Largely at the instigation of politicians, merchants, contractors, and other self-serving whites, several bands of mutually uncongenial Apaches were transferred from desirable areas to the unhealthy San Carlos Reservation in the Arizona lowlands. As a result, much of what Crook had accomplished was undone as disgruntled Apaches again turned to raiding and killing. In the summer of 1881, for example, an Apache medicine man stirred the Native Americans to heights of religious fervor that led to a sharp clash at Cibecue Creek with troops commanded by Colonel Eugene A. Carr, one of the Army's most experienced Native American-fighters. The action was highlighted by perhaps the most notable instance of disaffection when the Indian scouts with the command turned on the Regulars. The duel did not turn into another Little Bighorn, however, and troops of the 6th US Cavalry held their positions hunkered down with their Springfield carbines, thus indicating these weapons were more than adequate if unit cohesion and good leadership were maintained in the face of superior odds.



In the late 1880s, buffalo soldiers from Troop K, 10th US Cavalry at Fort Thomas, Arizona practice at the firing range under the watchful eye of Second Lieutenant Powhatan H. Clarke. The sergeant at the far left is firing a Model 1886 experimental carbine with full stock.

After Cibecue Creek, Crook returned to Arizona in 1882 to restore the Apaches' confidence in the white administration and end years of costly conflict. On the military side, he took the field against dwindling numbers of opponents, cooperating with Mexican officials and authorized to cross the international boundary in pursuit of bands that had bolted from their reservations. Crook parlayed with Geronimo in the Sierra Madre Mountains in March 1886 and negotiated a surrender that brought in all but Geronimo and a few followers who backed out at the last moment. When Washington failed to back the field commander in the conditions on which he had negotiated the surrender, Crook asked to be relieved. Major General Nelson A. Miles replaced him, and Lieutenant Charles B. Gatewood entered Geronimo's mountain fastness where he arranged the surrender of that tenacious guerrilla and his handful of fighters in 1886 to draw major campaigning against the Apache to a close.

The Ghost Dance War

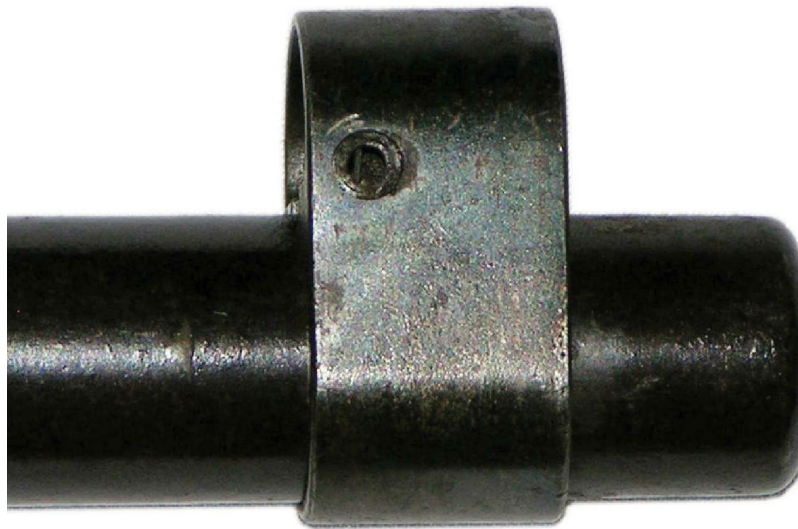
The last major explosive, tragic eruption of the Indian Wars occurred in 1890 and grew out of the fervor of the Ghost Dance religion. The Sioux particularly were susceptible to the emotional excitement and the call of the old way of life represented in these ceremonies, and their wild involvement frightened the agent on the Sioux Reservation into calling for military protection. The Army responded by undertaking a series of military actions known as the Pine Ridge Campaign. One part of that campaign had the 7th US Cavalry, now commanded by Colonel James W. Forsyth, move to Wounded Knee Creek on the Pine Ridge Agency, where on December 29 the regiment attempted to disarm Big Foot's band. A Native American's rifle was

discharged into the air as two soldiers disarmed him, precipitating a battle in which more than 150 Native Americans, including women and children, were killed and one-third as many wounded, while 25 soldiers were killed and another 37 wounded, felled by lethal breech-loading Hotchkiss light artillery pieces and some of the final models of the Springfield.

ENFORCING THE PEACE

While minor skirmishes and manhunts continued for years to come, the American West had been tamed and the constabulary duty that characterized the US Army during much of the Victorian era came to a close. But not all the US Army's deployments were against Native Americans and others in the West in the last quarter of the 19th century. Other less prominent use of arms likewise occupied some troops including, as previously referenced, several years dedicated to the preservation of the new state governments reestablished after the Civil War.

Along with the new assignment that was somewhat akin to latter-day nation-building operations there came the responsibility of protecting freed slaves. This knotty undertaking fell to the Regulars in spite of the resurgence of state militias under the Reconstruction governments.



The rather sophisticated sights that had been developed by the 1880s were somewhat vulnerable to damage when paired with the various saddle-mounted carbine boots issued to cavalrymen beginning in the mid-1880s. In 1890 a sight protector addressed this issue. This example is from the Hayes Otoupalik collection. (Photo by William R. O'Donnell)

Because many of these new militia organizations consisted of African Americans, they often proved ineffective against white racists, who directed some of their acts against the militiamen themselves. This meant these militiamen mainly performed general police duty and watched over elections and voting. Eventually, because of the opposition of white southerners to African Americans in uniform, those militia units would be disbanded – in no little part because of a sea change in national politics. During April 1877, as a result of the compromise by which Rutherford B. Hayes became president after the disputed election of 1876, the last of the troops on reconstruction duty in the South transferred to other areas and the federal military occupation of the region concluded.



Wearing the 1885–1902-period full dress of an Ordnance Corps enlisted man, Corporal Weiner stands with his Model 1879 nearby.

Moreover there existed a number of domestic disturbances in which armed forces also were required, not only in the South during the Reconstruction period but also elsewhere. Indeed, by 1878, when Congress forbade the use of federal troops without governmental authorization, there were literally

hundreds of instances of their deployment by federal marshals in policing elections, helping to apprehend criminals, keeping the peace in conflicts between rival state officials, enforcing local laws, collecting revenues, arresting individuals for various offences, and against strikers.

Under the circumstances of their use, federal troops came into only limited contact with mobs during the 1877 strikes. They nevertheless contributed greatly to the restoration of order. The positive results were not due to the size of the force, for as noted earlier with only about 24,000 troops in the entire Army in 1877 only a small detachment could be used at any one place; but these Regular troops were well disciplined and, taking their cue from President Hayes himself, they acted with considerable restraint in quelling strikes, neither losing a single soldier nor causing the death of any civilian.

Although the Army became involved in other strike duty in the succeeding years of the 19th century, the best-known instance was in the Pullman, or railway, strike of May 11, 1894 which, although centered in Chicago, also affected other parts of the country. President Grover Cleveland's order hastily calling out troops in Chicago (against the wishes of Illinois' governor) provided that they should execute the orders and processes of federal courts, prevent obstructions to the movement of the mails, and generally enforce US laws. In fact, they put down the strike. Other governors also protested the use of federal troops in their states. Major General Nelson A. Miles, who commanded the 2,000 federal troops in Chicago (and who had advised against using them in the strike), did not deploy his men effectively, perhaps because he broke them up in small detachments in support of policemen and marshals at scattered points. New orders, nonetheless, required him to concentrate his forces and authorized him to fire upon rioters after a proper warning. A small company of Regulars under his command did fire upon a mob in Hammond, Indiana, on July 8, 1894, when about to be overwhelmed by a sizable contingent which greatly outnumbered the troops. At least one rioter died and more than a dozen others received wounds. The violence was actually much less in 1894 than in 1877, but with only about 28,000 officers and enlisted men in service the Army was strained to the limit.



Most of these cavalrymen in this c.1890 image of a troop in campaign kit have slipped on front-sight covers to protect the blade on their carbines. (Courtesy National Archives and Records Administration 111-SSC-87215)

The United States Supreme Court unanimously sustained President Cleveland's actions in Chicago during the 1894 strike, with the result that a legal precedent evolved for using federal troops within a state without its consent. Be that as it may, troops bearing arms against their fellow citizens proved unpopular with many, who since the time of the American Revolution had viewed a standing army with suspicion and sometimes with disdain.

BEYOND THE FRONTIER

While some historians claim the American frontier ended in 1890, the expansionist drive that propelled a people across a continent remained an active force. For those not content to halt at the West Coast, the Pacific and other places beyond the shores pulled with the same siren call of Manifest Destiny that once resonated in the Old West. This new manifest destiny first took the form of vigorous efforts to expand long-established American trade and naval interests overseas, especially in the Pacific and Caribbean. Thus, in the Pacific the United States took steps to acquire control of coaling and maintenance stations for a growing steam-propelled fleet. In 1878 the United States obtained the right to develop a coaling station in Samoa and in 1889, to make this concession more secure, recognized independence of the islands in a tripartite pact with Britain and Germany.

In 1893, when a new indigenous government in Hawaii threatened to withdraw concessions, including a site for a naval station at Pearl Harbor, American residents tried unsuccessfully to secure annexation of the islands by the United States. Development of a more favorable climate of opinion in the United States in the closing years of the 19th century opened the way for annexation of Hawaii in 1898 and Eastern Samoa (Tutuila) in 1899.



The Model 1879 rifle retained the ramrod (cleaning rod) in the channel below the barrel and featured an improved sight. (USNPS Photo, Springfield Armory National Historic Site, SPAR 5528)

During this same period, the US Navy endeavored with little success to secure coaling stations in the Caribbean, and Americans watched with interest abortive efforts of private firms to build an isthmian canal in Panama. American businessmen promoted establishment of better trade relations with Latin American countries, laying the groundwork for the future Pan American Union. Recurrent diplomatic crises, such as that with Chile in 1891–92, arising from a mob attack on American sailors in Valparaíso, and with Britain over the Venezuela–British Guiana boundary in 1895, drew further attention to the southern continent.

Rebellion in Cuba

Cuba's geographic proximity to the United States and strategic location had long attracted the interest of American expansionists. Yet most Americans paid little attention to their island neighbor until 1895, when Cuban rebels rose up in protest against continuing repression by the mother country – Spain. Support for intervention grew.

When after almost a year of costly fighting the Spanish had failed to suppress the rebellion, they turned to harsher measures. Newspaper headlines attacked Spanish policies in Cuba and journalists portrayed the Spanish as inhuman butchers; politicians, both in and out of Congress, looked to the Cuban situation as an opportunity to gain popular support in the upcoming election of 1896; and a few expansion-minded American leaders envisioned the insurrection as a chance to acquire naval bases in the Caribbean.

Despite the jingoist atmosphere, President William McKinley hoped to achieve a diplomatic solution. A peaceful outcome might have been obtained had it not been for the sinking of the American battleship USS *Maine* on February 15, 1898 in Havana harbor. As a result of a mysterious explosion some 260 sailors and Marines lost their lives. A naval investigating commission appointed by the president announced on March 25 that USS *Maine* went down as the result of an external explosion, which to many Americans indicated Spanish treachery. Nevertheless, on March 27, President McKinley dispatched a new plan to Madrid for peaceful settlement of the Cuban issue. The Spanish reply on March 31 agreed to end the *reconcentrado*

policy and arbitrate the *Maine* disaster, but procrastinated on granting the insurrectionists an immediate armistice. The Spanish likewise refused to accept mediation by President McKinley or to promise eventual independence for Cuba. The US Congress passed a joint resolution proclaiming Cuba's independence and authorizing President McKinley to take necessary measures to expel the Spanish from the island. On April 25 Congress declared a state of war had existed since April 21.

Preparing for war

The Army's quarter-century on the frontier meant that with its small force scattered widely across the country in company- and battalion-sized organizations, troops never experienced the opportunity for training nor gained operational know-how to operate in formations larger than a regiment. While the individual soldier may have been well trained, the Army lacked a mobilization plan, a well-knit higher staff, and experience in carrying out joint operations with the Navy. The National Guard, with somewhat more than 100,000 members, was composed mostly of infantry units. Still lacking a consistent program of supervision by the Regulars, most Guard units were poorly trained and disciplined, and inadequately equipped; like the standing military, they had limited field experience, and were understrength. Thus, although most Regulars by 1898 were armed with Krag-Jørgensen rifles firing smokeless-powder cartridges, many guardsmen were still equipped with Springfield rifles which could fire only black-powder ammunition that left telltale billows of white smoke and were single-shot weapons as opposed to the superior modern magazine-fed, smokeless-powder repeating Mausers in the hands of the Spanish.

Despite obvious deficiencies, the National Guard might have supplied many of the units used in the conflict had it not been for other factors that made it difficult to employ guardsmen at short notice in overseas theaters of war. Under existing law, there was some question as to whether it was legal for state Guard units to serve abroad. Furthermore, Guard organization varied greatly from state to state. Moreover, many guardsmen objected to any effort to place them under Regular Army command and control for the sake of achieving greater uniformity in organization. The War Department proposed to form a new federal volunteer force with officers appointed by the president. For the most part entrenched state Guard higher authorities

opposed this move, prompting Congress in the Mobilization Act of April 22, 1898 to settle for a makeshift arrangement providing for a wartime force composed of both Regular and volunteer units organized into brigades, divisions, and army corps. Some Guard units did, in effect, serve under an arrangement whereby if enough members of a state unit volunteered for service, they were kept together to form a comparable federal volunteer unit.



At the end of the Victorian era US Volunteer infantrymen both in Cuba and the Philippines retained the last of the Springfield rifles to see active campaigning. (US Army Heritage and Education Center)

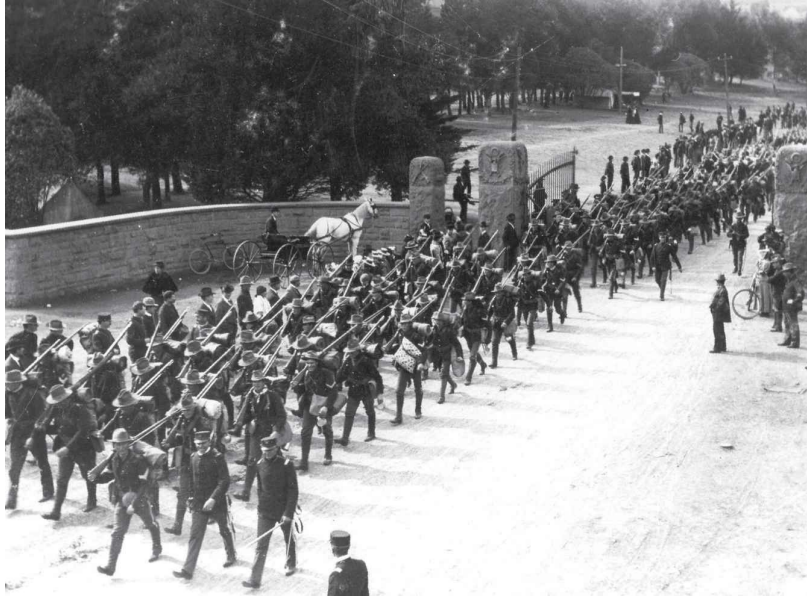
Although the act of April 22 provided for 125,000 volunteers, popular demand prompted Congress to increase this number by 75,000 and authorize additional special volunteer forces. Simultaneously the act likewise called for more than doubling the size of the Regular Army to nearly 65,000. By war's end in August 1898, the Regular forces numbered 59,000 and the volunteers, 216,000, a total of 275,000.

Mobilizing, equipping, and supplying these wartime forces placed a severe burden upon the War Department, including the fact that there were mixed armaments of various types and calibers, much as had been the case during the Civil War. Additionally, the decision to mobilize large volunteer forces compounded the problems of equipping, supplying, and preparing the wartime invasion forces. In the spring and summer of 1898, thousands of enthusiastic volunteers, a few with some militia or National Guard training but most only raw recruits, poured into newly established camps in the South

– located there so as to be near Cuba and, at the same time, acclimate the soldiers to semitropical conditions. A taste of military life in the training camps soon curbed the enthusiasm of most volunteers, who experienced considerable frustration due to chronic shortages of the most essential equipment such as basic items including underwear, socks, and shoes.

The slow pace of preparation and loading of the expedition in part resulted from the lack of an overall plan and absence of a special staff to direct the combined-arms strike force – the largest of its kind since the conclusion of the Civil War. Although selected because of its port facilities and proximity to Cuba, Tampa, from a logistical point of view, proved to be a poor choice for marshaling a major military expedition. With only one pier for loading ships and a single-track railroad connecting with mainline routes from the north, the resulting backup of freight cars for miles delayed shipment of much-needed materiel. Incoming soldiers waited interminably in uncomfortable railroad cars. When freight cars finally reached the port area, there were no wagons to unload them and no bills of lading to indicate what was in them. Likewise when loading the ships, of which there were not enough to carry the entire corps, supplies and equipment were put on board with little regard for unloading priorities in the combat zone should the enemy resist the landings.

In spite of confusion and inefficiency, by June 14 nearly 17,000 men set sail, in 18 Regular and two volunteer infantry regiments; ten Regular and two volunteer cavalry squadrons, serving dismounted; one mounted cavalry squadron; six artillery batteries; and a machine-gun (Gatling gun) company. The expedition comprised a major part of the Regular forces, including all four of the Regular African American combat regiments. Shipping out from Tampa on the morning of the 14th, V Corps joined its naval convoy the next day off the Florida Keys.



Foot soldiers of the 51st Iowa Volunteer Infantry bound for the Philippines in the late 1890s were among the last American forces to be issued trapdoors for combat. (US Army Heritage and Education Center)

By June 20 the task force reached the vicinity of Santiago. They were heading toward an estimated 200,000 Spanish defenders on the island – some 36,000 of them in Santiago Province, where the Americans were bound. Although the enemy boasted considerable numbers, they did nothing to prevent Major General William R. Shafter's men from coming ashore. Some 6,000 landed on June 22 with most of the remaining 11,000 following in two days.

The Battle of Santiago

Once ashore, the Americans moved westward toward the well-entrenched Spanish. On June 23, Brigadier General Henry W. Lawton's vanguard advanced along the coast from Daiquiri to occupy Siboney. The next day, Brigadier General Joseph "Fighting Joe" Wheeler, a bandy-legged former Confederate cavalry officer, pushed inland along the road to Santiago with dismounted cavalry – carrying Krag carbines, which by now overshadowed trapdoors that were approaching the end of their combat life cycle – to seize Las Guasimas. After a brief skirmish with Spanish rearguard elements the Americans were within 5 miles of the San Juan Heights. They paused for a few days to assemble the remainder of their troops and to move up supplies. Shafter, aware that the hurricane season was approaching, decided in favor of

an immediate attack on the defenses of Santiago in a frontal attack on the San Juan Heights.

Shafter deployed Brigadier General Jacob F. Kent's infantry division on the left and Wheeler's dismounted cavalry on the right. Before making the main advance on the heights, Lawton's infantry division with a goodly number of his units, such as the 71st New York Volunteer Infantry, armed with outmoded trapdoors but fortunately provided with a supporting battery of artillery – more than 6,500 men – was to move 2 miles north to overwhelm the fortified village of El Caney, thereby cutting off Santiago's water supply and, if necessary, intercepting rumored Spanish reinforcements. Once this action was completed, Lawton was to head southwestward and form on Wheeler's right flank for participation in the main assault. Furthermore, a brigade that had just landed at Siboney was to advance simultaneously along the coast in a feint to deceive the enemy.

The attack moved out at dawn on July 1, but became badly disorganized because of poor coordination, difficult terrain, and tropical heat. At a stream crossing on the crowded main trail to the San Juan Heights, enemy gunners scored heavily when a towed Signal Corps balloon pinpointed the front of the advancing line of troops – so much for the proper utilization of technology. Lawton's division, delayed in its seizure of El Caney by a stubborn enemy defense, misplaced artillery, and the necessity of withdrawing a volunteer unit armed only with telltale black-powder Springfield rifles, did not rejoin the main force until after the assault had ended. Despite these unexpected setbacks, Kent's and Wheeler's divisions at midday launched a strong frontal attack on the Spanish forward defensive positions. Cavalry units of Wheeler's division armed with their Krag's seized Kettle Hill, separate from the central heights.

Kent's infantrymen, supported by the unorthodox employment of Gatling guns in the attack, stormed up San Juan Hill in the main ridge line, driving the Spanish from blockhouse and trench defenses and compelling them to retire to a strongly fortified inner line. At the end of the day the Americans had secured most of their initial objectives. On July 3, concerned with the increasing levels of illness that had thinned V Corps' ranks, and faced by a well-organized Spanish second line of defense, Shafter cabled Secretary of War Russel A. Alger informing his superior that he was considering withdrawing about 5 miles to higher ground between the San Juan River and

Siboney. The shift in his lines would place his troops in a position where they would be less exposed to enemy fire and could be more easily supplied.



This detail of the breech block shows the tip of the ejector on the left, ahead of the inscription "US MODEL 1884." (NRA Museums, NRAMuseums.com)

Within a few days Shafter persuaded the Spanish to surrender. On July 16 they signed the unconditional terms demanded by the McKinley administration.



The characteristic lock plate and hammer found on Springfield rifles of the 1880s. (NRA Museums, NRAMuseums.com)

Victory in the Caribbean

During preparations for the Santiago campaign, Major General Nelson A. Miles personally oversaw the organization of a second expedition to take Puerto Rico. On July 21 he sailed from Guantanamo with more than 3,000 troops. His original strategy was to land first at Cape Fajardo in the northeast part of the island, where he could establish a base of operations for a subsequent advance westward to the capital, San Juan. For reasons not entirely clear, but probably due to a desire not to have to cooperate with the US Navy in the attack on San Juan, Miles, while still at sea, changed his plans and instead on July 25 his forces came ashore at Guánica on the southeastern coast. Meeting limited opposition, the Americans soon occupied the port of Ponce. In early August, after the arrival of more than 10,000 additional troops from ports in the United States, Miles, using Ponce as his headquarters, dispatched a four-column drive toward San Juan. There was little bloodshed – casualties for the campaign totaled fewer than 50 – and, in fact, most Puerto Ricans welcomed the American troops. The campaign ended on August 13 when word reached the island that Spain had signed a peace protocol the previous day.

Meanwhile, in Cuba, conditions for the Army were much less pleasant as the spread of malaria, typhoid, and yellow fever among Shafter's troops at Santiago threatened to deal far deadlier consequences than had the actual fighting. Concern over this problem led to the drafting of a joint letter by a number of Shafter's senior officers, proposing immediate evacuation of the Army from Cuba. Addressed to the commanding general, this round-robin letter unfortunately came to the attention of the press before it reached Shafter. Hence, Washington officials read it in the newspapers before learning of its content from the general himself. Naturally the whole episode, coming at the time when peace negotiations were beginning, caused a sensation. Although acutely embarrassing for the Army and Major General Shafter, the incident did have the salutary effect of hastening measures to evacuate thousands of troops to Montauk Point, Long Island, where the Army medical department had already taken steps to establish an isolated detention camp.

Operations in the Philippines

In another tropical setting halfway around the world from Cuba the final military episode of the war took place. During May and June 1898 Commodore George Dewey, while awaiting the arrival in the Philippines of land forces from the United States, kept in contact with the insurgent leader, General Emilio Aguinaldo. The Filipino forces occupied lines on the land side of Manila, preventing the Spanish garrison from moving beyond the immediate outskirts of the city.

Although the Americans and the Filipino insurgents shared a common interest in bringing about the defeat of the Spanish, relations between them deteriorated during the period of waiting. The most important reason for this stemmed from a fundamental difference in objectives. The goal of the insurgents, who controlled most areas outside the towns and cities on Luzon and the other important islands, was immediate independence for the Philippines. After some hesitation the McKinley administration and many Americans reached the conclusion that the United States should retain the islands. Once Aguinaldo became aware of this he endeavored to counteract it by taking steps to establish a revolutionary government with himself as president. On August 6 he appealed to foreign governments to recognize the independence of the Philippines. Hence by late summer there was serious doubt as to just what might be expected from the increasingly determined, hostile insurgents.

In the interim, the long-awaited ground forces needed to complete the campaign in the Philippines began arriving in the Manila area. By the end of July 1898, some 13,000 volunteers, mostly from 15 state National Guard units, typically were armed with trapdoors, while 2,000 Krag-carrying Regulars, also added to VIII Corps under Major General Wesley Merritt, had reached the islands. These troops had embarked from West Coast ports (chiefly San Francisco) with a minimum of the confusion and difficulty that had characterized the launching of the Cuban expedition from Tampa. In spite of the long voyage across the Pacific, they were in good condition and ready to start operations against the Spanish as soon as enough troops could be moved into the vicinity of Manila.



The end of an era came when wooden stocks of obsolete Springfield trapdoors were pressed into service as little more than poles on which to mount practice fencing bayonets. This example is in the Hayes Otoupalik collection. (Photo by William R. O'Donnell)

By early August Merritt had 11,000 troops of VIII Corps in lines immediately to the rear of those occupied by the insurgents, ready to attack Manila. Inside the Philippine capital city and in fortified lines just beyond the city walls were about 10,000 to 15,000 Spanish troops. Although their leaders realized the relative hopelessness of the situation, the Americans' efforts to secure a peaceful surrender failed because the Spanish government in Madrid insisted that the garrison should make at least a token show of resistance. On the morning of August 13 VIII Corps launched an assault on Manila, which among other things coincided with one of the last large-scale uses of the Springfield trapdoor.

As the tide receded, American units moved quickly to the beaches on the south side of the city and then, supported by concentrated fire from US Navy ships, advanced through the insurgent lines. By prior arrangement, somewhat reluctantly agreed to by their Filipino allies, the latter were to retire as the Americans moved toward the Spanish entrenchments. In carrying out this difficult maneuver, Americans and insurgents unintentionally became intermixed and some troops – presumably for the most part insurgents – began firing on the Spanish lines. Momentarily, this flare-up threatened to thwart the enemy's plan to offer only token resistance, but quick action by American officers brought the firing under control and the garrison surrendered. Operations at Manila cost the Americans a total of 17 killed and 105 wounded.

Formal surrender ceremonies came the following day – actually two days after the government in Madrid had signed a peace protocol ending hostilities – but the Americans did not depart, leading to years of fighting between Filipinos who sought independence and US forces some of whom were the last to brandish the trapdoor. Intent on self-government after the December 1898 Treaty of Paris ended fighting between the United States and Spain, the former colonial power that long had claimed the Philippines, the Filipino independence movement soon lashed out against the latest occupation forces on their islands. Liberation-seeking fighters first clashed with the Americans at the Battle of Manila on February 4–5, 1899. Within a week the front had

moved nearly a dozen miles toward Caloocan, a strategic railroad center on the way to the Philippine Republic's provisional capital of Malolos. For nearly a year the two sides fought for the fate of the islands. Eventually the main contest ended with the Americans remaining in place and Philippine independence forestalled until after World War II.

So it was that the United States began to assume a new place as an international power, even as the faithful firearm of its Army, the trapdoor, was passing away along with the frontier constabulary army. The days of the Old West American soldiers in blue brandishing the single-shot Springfields gave way to the khaki-clad army of empire with smokeless-powder magazine-fed Krag that were destined to carry the Stars and Stripes around the globe.



The 20th Kansas Volunteer Infantry at Caloocan, 1899

Fierce fighting erupted between Filipinos and US Army forces on February 11, 1899 at Caloocan, a strategic railroad center on the way to the Philippine Republic's provisional capital of Malolos. To protect the prize from capture, resolute Filipino General Antonio Luna ordered preparation of defensive trench works. The men of Company M, 20th Kansas Volunteer Infantry were among the attacking forces. Advancing and firing volleys the company moved forward. According to the regiment's colonel, Frederick Funston – quoted in the *Daily Republican* newspaper published in Monongahela, Pennsylvania, on April 27, 1899 – they along with four other units “were working their Springfields for all they were worth, and their front was

blanketed with a pall of white smoke that resembled a fierce prairie fire, for we had not yet received smokeless powder for these weapons.” Funston recorded how his men got “a mild foretaste of battle” some months earlier, as his regiment gathered in San Francisco preparing for sailing. They held “battle exercises with blank ammunition ... as advancing companies rushed forward, throwing themselves prone at every halt, their front thick with smoke, while the roar of the old Springfields drowned all commands ...” Now the engagement was the real thing, as Captain Davis Elliot of the 20th Kansas graphically recounted: “Talk about war being ‘hell,’ ... Caloocan was supposed to contain seventeen thousand inhabitants. The Twentieth Kansas swept through it, and now Caloocan contains not one living native ... You can only faintly imagine the terrible scene of desolation.” Despite the fact that the volunteers had been issued outdated single-shot .45-70 black-powder “longtoms,” in the hands of these resolute infantrymen they defeated a well-entrenched, determined enemy.



IMPACT

Conquering the Wild West

The trapdoor was not developed or used in a vacuum. Its impact touched upon assorted, interlocking cornerstones key to the very nature of the Army from the mid-1860s through the early 1890s – most notably edged weapons, accoutrements, ammunition, training, and tactics. Even though the post-Civil War martial hierarchy conceded the time had come to abandon muzzle-loaders, more than a few of the military old guard continued to espouse armaments that had limited utility on the frontier where a highly mobile Native American adversary would not stand still for saber blow or bayonet thrust. Despite this salient fact, both edged weapons remained items of issue for enlisted personnel.

BAYONETS

The bayonet continued alongside the trapdoor (as it had for previous generations) as the close-combat infantryman's arm, and infrequently as an improvised candle-holder when jabbed into the ground to provide illumination in camp. However, some observers had declared the bayonet's time had passed with the appearance of rapid-loading long-arms. An article in an 1868 edition of *The Army and Navy Journal*, the unofficial organ of the US military of the 19th century, carried a letter concluding: "The trouble with admirers of the bayonet is that they do not reflect what the breech-loader can accomplish ... There is but one way to oppose breech-loaders, namely, with breech-loaders" (quoted in Jamieson 1994: 11). By the time of the 1876 campaign on the Northern Plains an official Army after-action report demonstrated how far this line of thinking had progressed when it indicated: "Not a single triangular bayonet was carried by the infantry in General [Alfred] Terry's [George] Crook's column" (quoted in McChristian 1995: 191). Despite this last observation, the ancillary uses of the socket bayonet meant that the move to replace it with a sliding rod under the rifle barrel led to the requirement to produce and distribute various belt-mounted, small entrenching tools.

Nevertheless, official policy clung to tradition and leaned toward economy. Much like the vast quantities of muskets that could be transformed into breech-loaders, a large supply of 18in triangular socket bayonets adopted in 1855 provided a ready source for use by foot soldiers in the mid-1860s and for decades thereafter. A problem existed, however, in that the surplus bayonets made for larger-caliber muskets necessitated modification by “cold forging” the larger-diameter sockets of the old model in order to accommodate the smaller .45-caliber rifles entering service during the early 1870s. In due course, bluing was applied to the formerly bright blades and sockets. Along with the refurbishment came a number of scabbard variants hung from the left hip on waist belts.

In addition to traditional triangular bayonets a few combination weapon-entrenching tools were conceived of and made available. No less a figure than the Army’s commanding general, William T. Sherman, acknowledged that bayonets and non-commissioned officer’s swords – the latter edged weapon serving as a badge of office – no longer retained a place in combat. A senior ordnance officer, J.W. Riley, agreed with Sherman, adding that both the saber and bayonet should “be replaced by a more useful weapon and tool” (quoted in Jamieson 1994: 11).

Many troops on both sides of the Mason–Dixon Line had reached a similar conclusion based on their sanguinary Civil War experiences, during which they came to appreciate the killing power of rifles and their deadly payload that could be offset in part by even rudimentary protective precautions. Digging in was a wise move, but entrenching tools were far in the future, thereby necessitating improvised methods that ranged from mess plates to canteen halves, knives, or other ad hoc means to create entrenchments or defense works. Not until the Civil War drew to a close did the Union Army issue excavating implements, when in 1865 a combination bayonet and spade was produced in small numbers. These prototypes played no major part in combat during the Civil War, but the idea did not end there.



While imposing triangular bayonets proved of little use in post-Civil War combat, they made wonderful props in the photographer's studio for these two infantrymen, c.1875.

During 1868 and 1869 renewed labors saw the introduction of a combined spade-weapon for the .50-70 Springfield, in this case a blade of bright polished metal measuring 8.25in in length and 3.94in at the broadest part of its width. A muzzle cover pivoted down on a hinge-pin screw to form a ring that locked into position by means of a sliding bar. This feature was to prevent dirt from entering the barrel. When not mounted on the muzzle, infantrymen packed the Model 1869 trowel bayonet in a black leather scabbard that was fitted with a loop to slide over the waist belt and ended with a brass tip to preclude the sharp point from poking through the weak spot.

Attempts to improve the design paralleled the ongoing movement to upgrade the trapdoor itself. In 1872 and again in 1873 respectively, two types were fabricated, with the first version being sent to various posts in Kansas for testing. Responses to the Model 1872 elicited a positive endorsement from Colonel Nelson A. Miles, commander of the 5th US Infantry at that time. Writing from his Fort Leavenworth headquarters, Miles believed the

implement was “a formidable weapon” as a bayonet. Continuing, Miles opined, in written testimony printed in the April 4, 1872 House of Representatives Executive Document No. 260, on the trowel bayonet that after his four years as an infantry officer in the Civil War the new weapon offered superior advantages to the old socket bayonet, thereby prompting him to urge “its adoption at once” (quoted in US House of Representatives 1872: 3).



Detachable triangular socket bayonets from the collection of Larry Floyd. Bayonets such as these remained in vogue for most of the Indian Wars era. Musket bayonets were at first issued but over time .45-70 replacements became available, while a number of scabbard designs emerged in keeping with the evolution of waist belts from which they were suspended. (Photo by Nancie Laing)

Many others also dutifully expressed their views in this same document. One of them was Miles’ subordinate, First Lieutenant Thomas H. Logan, who echoed his superior’s comments, relating in somewhat improbable terms that “the trowel bayonet can be used to a great advantage in throwing up rifle-pits and building field-works, thereby adding to the mobility of an army by the decreased number of wagons required to transport intrenching [sic] tools” (quoted in US House of Representatives 1872: 5). The enthusiastic company commander further contended that use of the trowel bayonet as a weapon was more than adequate and when the blade was sharpened on one side, the piece could be employed as a hatchet.

A third observer suggested lengthening the handle after observing that the short measurement of the production model produced blisters when the men dug with the tool independent of the rifle. Another officer proposed a different approach to resolve this shortcoming. Wooden handles could be

issued and slipped into the socket for easy conversion to a spade, but one of his comrades, Captain W. Lyman of the 5th US Infantry, retorted this step was unnecessary because the “self-reliant soldier, having the essential part” would improvise with whatever could be found at hand (quoted in US House of Representatives 1872: 8). Conversely, Captain James A. Snyder of the 3rd US Infantry offered that the trowel type presented “a less military appearance” but conceded the Model 1872 could prove effective in combat as much as the earlier design, and “after becoming accustomed to the eye, probably [would] look well” (quoted in US House of Representatives 1872: 6). Aesthetics aside, Snyder conceded he saw no objection to the manufacture of the trowel bayonet on a larger scale.

In fact, by 1873 10,000 Rice-pattern trowel bayonets with so-called Chillingsworth handles would be manufactured and distributed to units stationed from Kansas to California. For instance, doughboys of the 16th US Infantry garrisoning Fort Riley, Kansas paraded with the trowel bayonet even in dress uniform, while the *San Francisco Chronicle* of December 30, 1885 indicated companies of the 8th US Infantry marched out with their rifles, “haversacks, canteen, cartridge belt, trowel bayonet, and the ever-present canteen cup ...” Nevertheless, despite good intentions the trowel bayonet never won universal acceptance, although separate digging devices or hunting knives would be tried and a version even proposed for cavalry that alternately could be turned into a picket pin. The mixed results when it came to the array of trowel bayonets and entrenching tools envisioned or manufactured for field trials eventually brought an end to these attempts until implements that were miniature spades appeared in the early 20th century in ample time for the American Expeditionary Forces to use them on the Western Front.



A Model 1869 trowel bayonet in the Larry Floyd collection. Some advocates proposed bayonets with dual functions as an edged weapon as well as digging implement or entrenching tool, such as the Model 1869 with a muzzle cover to keep dirt out of the bore when pressing the rifle into service as a shovel and the Model 1873 Hagner pattern that looked like a modern-day garden tool and could be slipped over the end of the barrel or used by hand. (Photo by Nancie Laing)

ACCOUTREMENTS AND ACCESSORIES

A more suitable Victorian-era resolution came about for carrying ammunition with the gradual phasing out of cartridge boxes for combat. Because muzzle-loaders fired linen- or paper-wrapped cartridges, protective leather boxes with tin or wooden inserts were required to help prevent moisture from ruining the rounds. Metallic cases tended to be more resistant to the elements, which meant the requirement to encase rounds in the traditional box diminished, although several models of leather boxes and pouches bearing the names of a number of Army officers would be produced in the decades after the Civil War.

In the beginning, however, as with the first Allin conversions using outdated muzzle-loaders as a platform, Civil War rifle-musket cartridge boxes likewise would be modified as interim means to carry ammunition. New designs gradually phased out the outmoded, repurposed .58-caliber musket boxes, which either were worn on leather shoulder straps or were belt-mounted. Chief of Ordnance Brigadier General Alexander B. Dyer drew on the former method when he introduced the Model 1870 carbine cartridge pouch that consisted of a leather semicircle featuring a gusset that permitted expansion to receive 60 metallic rounds once they were dumped inside from the heavy cardboard cartons that came from the arsenals packed in wooden crates. Two small flaps on either side of the edge of the mouth helped keep the ammunition from jostling out when in use. The fact that Dyer abandoned

wooden blocks bored out with holes to keep cartridges separate represented an innovation, as did the leather shoulder strap which on the cavalry version doubled as a carbine sling – the decades-old means for a mounted man to keep his long-arm handy. A small pocket on the front gave the advantage of accepting a few revolver rounds, but the main function was to hold .50-caliber bullets for either Sharps or Spencer weapons. Production of some belt-mounted designs began in 1872, followed by refinements starting in 1874 that would remain in use once the .45-70 Springfield carbine and rifles were adopted as standard.



As was the case with the early Allin breech-loading rifles the US Army Ordnance Department also converted surplus Civil War cartridge boxes originally designed for muzzle-loaders to carry metallic cartridges. This example is in the Hayes Otoupalik collection. (Photos by William R. O'Donnell)

The Dyer pouch's first iteration was included for review by a board of officers convened in St. Louis, Missouri during 1870 with the express purpose (among other things) to evaluate infantry equipment including cartridge-box samples based on several suggestions. One such proposal was a

vest worn on the chest with loops for cartridges, both in leather and another with canvas components, advocated by Captain Walter Clifford.



Infantry First Lieutenant George Palmer proposed a load-bearing Model 1874 “yoke” to help distribute the weight of cartridge boxes such as the Hagner No. 2 pouches and other accoutrements carried by infantrymen in the field. (US Army Heritage and Education Center)

In turn, Colonel P.V. Hagner presented a pair of cartridge boxes (a left and right) that could be worn on the front, one on each side of the belt plate that closed a waist belt, and which could be held up by one form or another of a yoke or brace system. Such a weight-distributing rig had been explored previously and a few iterations continued to be proposed in the 1870s by such inventors as infantry First Lieutenant George Palmer.

Palmer’s load-bearing yoke could be paired with a cartridge box recommended by First Lieutenant Samuel McKeever, a fellow infantryman. While the Dyer and Hagner patterns would have relatively short-lived use, McKeever’s model would be produced in several iterations well into the 20th century. McKeever also differed from Dyer and Hagner in that while he still held to a box (in fact the last one adopted by the Army), rather than having a flap that had to be raised to access the ammunition, his model opened by swinging down the front section, thereby exposing two rows of ten

loops holding a total of 20 shells. Leather bellows sewn near the top side of the interior permitted the tops of the casings to angle forward, making it easier to pull out the round. A subsequent version added a bulge on one side where a small combination tool could be stored.



By the 1880s belts such as one patented by US Army officer Anson Mills became the norm, with some of the early examples bearing scarlet, blue, or yellow edging to designate artillery, infantry, and cavalry troops respectively. These examples are in the collection of Hayes Otoupalik.

The Ordnance Department's Lieutenant Henry Metcalfe espoused a different approach. He abandoned the tried-and-true box, which he deemed obsolete. Instead, he proposed a horizontal wooden block with eight circular shafts for bullets. The rifle was to be modified with a metal device that could hold the block forward of the lock plate for quick removal of the ammunition. When expended, another block could be removed from a purpose-designed waist belt where other carriers holding blocks were suspended as a sort of forerunner to the removable-magazine concept, which would not find widespread use in the US Army until well into the 20th century.

Infantry Colonel William B. Hazen recommended another means of doing away with boxes or pouches, but his design was less complex than the Metcalfe system. Hazen suggested a simple double row of loops that had straps on the back so that the two pairs of these horizontal holders could be

slipped on the front of the issue black leather harness waist belts, adopted in the early 1870s for both field and garrison use. When combined with a Dyer pouch in the rear, a soldier could pack 80 rounds in the field, providing the man had sufficient girth and strength to heft the heavy load around his midsection.

This combination retained the advantages offered by the pouch while acknowledging the handiness of the cartridge belt, an accoutrement preferred by the rank and file and based on civilian-inspired looped belts for ease in packing ammunition in the field (McChristian 1995: 181). Consequently, the first belts, typically fabricated from leather by a saddler or other craftsman found at nearly every post, were usually obtained by the individual soldier from his own meager funds. In due course, webbing sometimes replaced the leather loops. Fort Abraham Lincoln's chief ordnance officer, Captain Otho E. Michaelis, observed the preference for belts among 1876 campaign veterans against the Sioux and Cheyenne: "I saw men with prairie belts. Some had slung the regulation belt over the shoulder, and wore the loop belt about the waist, others wore both belts and others again evidently for the want of material, had converted the regulation into a quasi loop belt by cutting slots in couples around them" (quoted in McChristian 1995: 194).

Ultimately, the conservative opponents of cartridge or thimble belts, as they were sometimes called, ceased their resistance. By the mid-1870s, "prairie" belts with individually sewn loops were introduced by the Ordnance Department. In due course Ordnance officers moved toward the invention of a cavalry officer named Anson Mills, who came up with a machinery patent that would weave the cotton loops into the body of the belt itself rather than the less-strong sewn webbing loops that stretched with use. Duck, in hues from unbleached off-white to medium brown or dark blue, emerged as the material of choice because of its flexibility, strength, and higher level of resistance to verdigris, which built up on cartridges particularly when they came into contact with leather. Nevertheless, this rugged, lightweight material was not a panacea for halting the problem of verdigris, thereby leading to tinning of copper cartridges that were less subject to this chemical reaction than copper alone. Buckles for the belts ran the gamut from plain brass frames with a tongue to heavy cast to complex interlocking plates with a "US" inset into a recessed oval background. A small amount of bandoleers

were also issued but because they were made for wear over a shoulder, these required no buckle.



A selection of tools from the Hayes Otoupalik collection. Troops had access to a variety of tools to maintain their weapons. Top row, left to right: band spring and tumbler punch; combination tool for Ward-Burton rifle and carbine; Model 1882 headless-shell extractor; Civil War nipple wrench altered to screwdriver. Bottom row, left to right: Model 1879 combination tool; Model 1876 screwdriver and mainspring tool; Model 1866 combination tool; Model 1875 headless-shell extractor; Model 1855 mainspring vice. (Photo by William R. O'Donnell)

Parallel progress for carrying carbines for cavalrymen also existed. They ranged from thimbles – mounted on the right side of the McClellan saddle and supported by carbine slings that ran from the left shoulder to the trooper's right hip – to various short scabbards, usually mounted to the right and behind the rider's hip, to an occasional pommel-mounted sleeve. A series of longer, more stable boots, some of which would have brass throats as reinforcement and which continued to be attached to the right side of the saddle versus occasional expedients mounted on the pommel, represented other options. In turn, foot soldiers relied solely on rifle slings or a number of carrying positions, from port arms to shoulder arms and less-formal stances, to haul the heavier long-arm hefted by infantrymen and which eventually would receive its own nickname – “Long Tom.”

Likewise, the Ordnance Department made efforts to deal with maintenance of the Springfield, although there was limited need for this requirement because of the simplicity and durability of the firearm. Even so, various types

of small tools were issued to the soldier that could be used to disassemble and reassemble the weapon. A headless-shell extractor also came into being in the unlikely event that a spent cartridge stuck in the chamber. One-piece ramrods, fitted in a channel under the rifle after the provision of a recessed area in the butt of carbines for a three-piece screw-together ramrod, provided another extraction method as well as a means for cleaning fouled barrels. Because combat was seldom prolonged, however, fowling was not a common problem. Field cleaning was the exception rather than the rule. Most often the soldier awaited return to the garrison, where wooden cleaning rods with heavy spherical top knobs were stored for this purpose.



US Army posts around the nation resounded to the reports of rifles and carbines as target practice formed a regular part of training in the last two decades of the 19th century. (US Army Heritage and Education Center)

Similarly, compact field-reloading kits were provided from Frankfort Arsenal in well-crafted, compartmentalized, small wooden chests that allowed for reloading components to be stored. Once again, however, the need for these expedients was minimal. Usually, all more major needs would be undertaken in garrison where a post ordnance sergeant (a specialized non-commissioned officer) was charged with such daunting duties as ordering, inventorying, issuing, and maintaining firearms, accoutrements, and ammunition.

MARKSMANSHIP

Most post-Civil War Army soldiers did not boast the extensive experience in battle possessed by their Native American adversaries. As senior research historian James E. Potter stated:



A stadia is visible in this studio portrait of a 25th US Infantry sergeant who no doubt wore the award with pride. (US Army Heritage and Education Center)



Stadia, such as this example from the Hayes Otoupalik collection, were adopted in 1858. Brass versions were to be issued to the best shot in a company or troop and engraved sterling silver ones were for the best shot in a regiment of infantry and cavalry. (Photo by William R. O'Donnell)

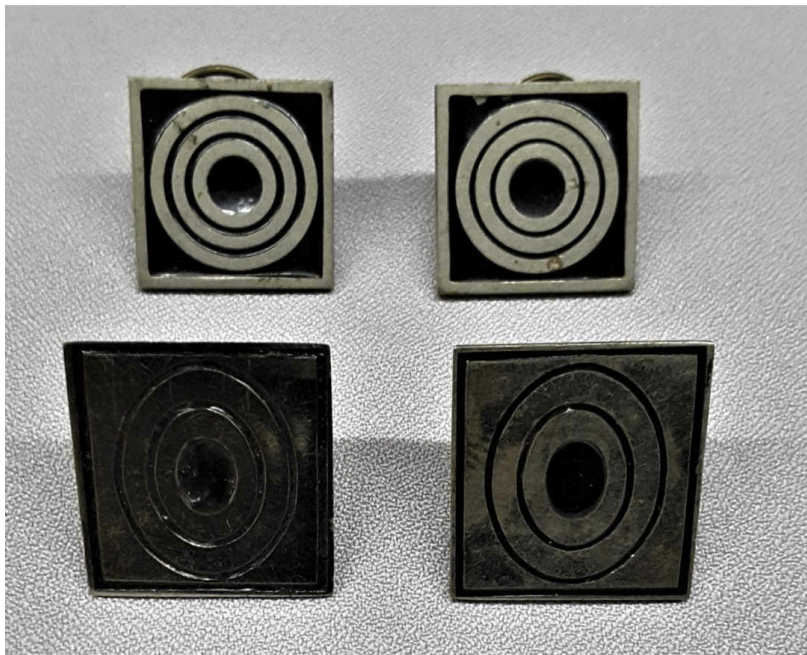
Throughout much of the nineteenth century, training soldiers to shoot with accuracy was low on the U.S. Army's list of priorities even as it had adopted new weapons capable of doing so. Civil War volunteers received little if any instruction beyond how to load and fire their guns as rapidly as possible. According to the tactics of the day, mass volleys from soldiers deployed in ranks were expected to decimate an enemy force by the sheer number of bullets sent in its direction; taking time to aim at individual combatants would actually slow the rate of fire. Later, during the Plains Indian wars, U.S. soldiers' deficiency in marksmanship became painfully evident during encounters with an elusive foe who fought individually or in small groups and often emerged unscathed by army bullets. Not until the early 1880s, after the Indian wars were nearly over, did the army brass take significant steps to address these shortcomings. (Potter 2016: 93)

This is not to say that the Army previously had not considered firearms' training. Indeed, in the antebellum era this goal sporadically surfaced, including the publication of an 1858 manual entitled *A System of Target Practice* as well as prizes at regimental and Army levels during that same year. As William Emerson noted, however, few in the Army paid much attention to this manual at the time, nor during the Civil War was a systematic effort undertaken to address marksmanship (Emerson 1996: 9). By 1872 the inspector of rifle practice for the State of New York, Colonel George Wingate, sought to address the matter with the release of his *Manual of Target Practice*. While the US Army did not embrace it the embryonic National Rifle Association promoted the volume, as did other influential

advocates such as William C. Church, who used his powerful bully pulpit as editor of *The Army and Navy Journal* to champion the cause. It took many years before Army officials consented to a marksmanship program, which by the 1880s had grown in importance from post shooting ranges to departmental and even national competitions where a plethora of impressive medals, prizes, and other inducements spread far and wide.



A 2in-long bronze marksmanship badge in the possession of Hayes Otoupalik. In 1884 the Army ordered some 2,500 2in-long bronze marksmanship badges with fanciful flourishes above and below the basic pin-on bar.



Medals/buttons from the Hayes Otoupalik collection reflect the Victorian era observation that a man or man on a horse was more of an oval target than a circular target. Consequently, the US Army changed the collar buttons and also the targets on Distinguished Marksman Medals for Rifle and Pistol marksmanship from the 1881 circular targets to oval targets in 1885.



An array of special marksman rifles, such as this example in the Hayes Otoupalik collection, were custom made with grips and other special features for use at the Army's various competitions to encourage proficiency in handling small arms. (Photo by William R. O'Donnell)

Concomitant with the earnest efforts to develop familiarity and competence in weapon handling came more manuals. The first was authored by Ordnance Colonel Theodore T.S. Laidley. His *Course of Instruction in Rifle Firing* (Laidley 1879) built on the work of Heth and Wingate, supposedly so much so that in the latter instance legal actions ensued over issues of plagiarism. Within Laidley's pages, however, were definitely original elements, such as a number of illustrations depicting both conventional and in some cases somewhat convoluted firing positions that would have made a reader of the *Kama Sutra* take notice. As another particular of the Laidley system, he espoused a vertically elongated bullseye-type series of circles.



This Model 1881 marksman rifle in the possession of Hayes Otoupalik provides another example of the special care taken to produce these finely crafted pieces. (Photo by William R. O'Donnell)

In 1883, another Ordnance officer junior to Laidley was ordered to review and update the work of his venerable predecessor. Captain Stanhope E. Blunt would prepare his *Firing Regulations for Small Arms for the United States Army* that appeared in a number of editions over the ensuing years (Blunt 1889). Among other features of Blunt's work were images of paper targets which not only were the traditional bullseye type, but also others that were full-sized silhouettes of "enemies" in combat poses that could be applied to metal frames of the same basic shape as the targets.



In 1887, many of the competitors at the US Army-wide distinguished marksmanship match in Bellevue, Nebraska used specially produced Springfields as they vied for top honors. (Courtesy US Army Heritage and Education Center)



Although marksmanship training was sporadic in the dozen years following the Civil War, some men were better shooters and had local modifications made to their Springfields, such as the addition of a sear let-off screw let into the stock to the right of the trigger in between the lock plate and trigger guard of this Model 1873 carbine. This non-regulation alteration provided a lighter trigger pull that could aid accuracy. (Courtesy Glen Swanson)

The firing process

It takes no technician to fire the Springfield as the process is nearly as straightforward as keeping the piece in order. Indeed, the process can be repeated rapidly and in fact is relatively simple and intuitive. Adjusting the Springfield's rear sights for the intended range, and placing the piece in the palm of the hand at the balance point, which is under the rifle's rear screw of the rear sight, and under the breech-block hinge for a carbine, the shooter is ready for the next step. Once the target is aligned, the hammer can be pulled back into the firing position, and the trigger

squeezed. A report rings in the ears as the lead slug is propelled from the muzzle, coinciding with the respectable recoil, followed rapidly by a muzzle blast accompanied by an acrid smell somewhat akin to spoiled eggs. Odor aside, the power of the Springfield rifle and carbine resulted in similar ballistics to the lead round used by the other military powers of the 19th century. For instance, a 405-grain bullet will leave the muzzle at around 1,330ft/sec, providing 1,590ft-lb of energy. The 500-grain version had a slightly higher velocity.

Dropping the muzzle a few degrees, the shooter – with a free hand that is not needed to secure or steady the weapon, allowing the firearm to be tucked against the side if necessary – pulls the hammer to half-cock. This motion can be achieved with ease by the thumb that then is placed under the breech-block latch. Pushing the latch upward, the breech block can be swung open to a reflexive angle until it stops. At this point, the ejector theoretically propels the spent case over the shoulder – or, for those with quick reflexes, the case can be grabbed in midair so it can be reloaded after a day at the range. Thence the free hand can remove a fresh cartridge from the belt or box and another round chambered with the rim against the ejector. The shooter reaches up with the free hand and pushes the breech block down, and the mechanism latches shut. At this point the piece can again be gripped at the wrist of the stock and raised to the firing position. The next step is to tuck the butt tightly against the clavicle to minimize bruising from recoil; then the hammer is ready to be cocked while grabbing the wrist of the stock. Finally, locating the trigger with the index finger, it is time to take aim by lining up the rear-sight groove with the front-sight blade on the target. At last the trigger is pulled gently, hopefully without flinching in anticipation of the discharge and recoil. Given that most recruits were not familiar with the firearm and indeed often had little or no familiarity with weapons, especially as the number of Civil War veterans in the ranks dwindled, the uncomplicated nature of firing represented a major plus for the Springfield.

REPUTATION

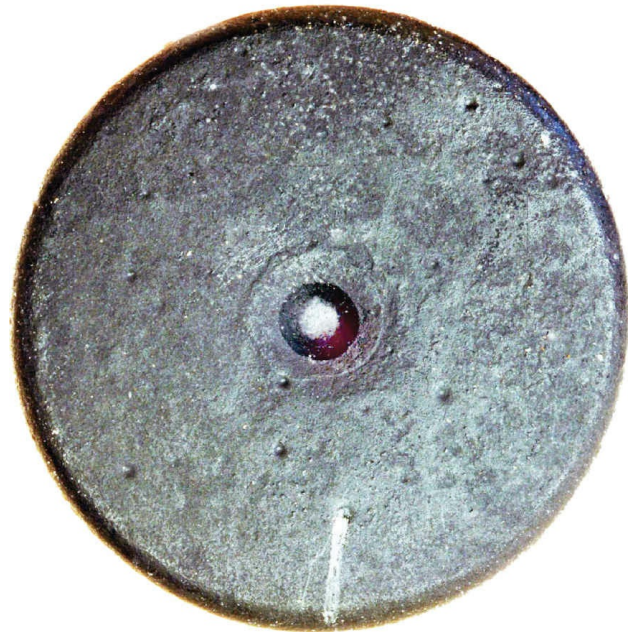
The Little Bighorn and its aftermath

One of Hollywood's mainstays from the silent era to modern times has been the legendary fate of Custer and his doomed 7th US Cavalry. So, too, have scores of authors recounted this battle, a few of whom focused on the firearms used in that fight. In the process, according to noted firearms expert Garry James, many commentators asserted that some of the cavalry's weapons jammed because the extractor had damaged the cartridge's base, meaning the soldier had to dislodge the trapped cartridge with his knife (James 2016).

As with much of the lore that has grown out of the storied engagement between Custer's troopers and the hard-fighting Plains warriors who bested the white soldiers during that fateful engagement in Montana, this oft-repeated tale lacks conclusive evidence. James observes that although this did occur in some cases (as revealed by forensic analysis of battlefield relics) it remains impossible to state with certainty that the extractor issue played a decisive role in the battle. He suggests that the emphasis placed upon the supposed shortcomings of the carbine was intended to divert attention from the command failures exhibited by Custer, and the fact that US troops had been defeated (James 2016). Moreover, even the disaster at the Little Bighorn did not wake the Army from its ambivalence when it came to organized marksmanship training. In the view of Douglas McChristian the fault lay not with the weapon but with the cartridge cases, produced by Frankfort Arsenal using copper alloy (McChristian 2007: 159). Concurrently the verdigris caused by field-fabricated leather cartridge belts added to the witch's brew, but in the end the debacle at the Little Bighorn grew out of a myriad other more salient reasons such as inadequate knowledge of the enemy's strength and disposition, egocentric bravado, dissolution of unit cohesion, and other factors that led to the demise of Custer and hundreds of his subordinates.



Cartridge fired for ballistic testing of Model 1873 carbine serial number 19573. (Courtesy Glen Swanson)



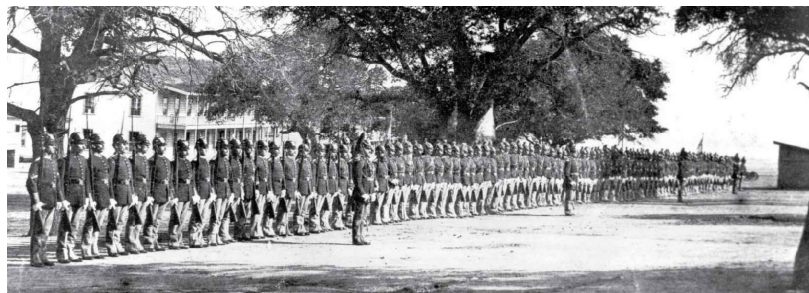
Cartridge excavated from Little Bighorn Battlefield matching test cartridge. (Courtesy Glen Swanson)

A cinematic legacy

Long after the Springfield trapdoor had been retired as a combat arm, real westerners, not the least of whom was William F. “Buffalo Bill” Cody, who helped preserve and shape the legend of the frontier, had used the tried-and-

true trapdoor in rip-roaring recreations of bygone days when visions of besieged whites blazing away against Native Americans in an untamed land beyond the Mississippi became part of the national myth. This was no coincidence in the case of Buffalo Bill. He was more than familiar with the hard-hitting weapon because his faithful .50-70 Second Model Allin “Lucretia Borgia” that brought down herds of bison on the Great Plains, and which helped earn his well-known nickname, was a trapdoor.

Little wonder that Hollywood also found the trapdoor a staple. For one thing the large supply on hand as the motion picture came on the scene made these castoff inexpensive blank shooters available to arm hordes of white extras and stuntmen impersonating Native Americans, regiments of on-camera “Billy Yanks” and “Johnny Rebs,” make-believe Custer troopers, and with an occasional faux flintlock hammer or other modification they were wielded by ranks of silver-screen Redcoats or marauding Middle Eastern menaces who stormed far-off imaginary French Foreign Legion forts.



Fort Huachuca, Arizona in the early 1880s: infantrymen and cavalrymen armed with Springfield small arms fall out for parade. (Courtesy National Archives and Records Administration)

In a few instances, these relics of a bygone era even appeared in the title role. For example, Warner Brothers’ 1952 feature film *Springfield Rifle* starring Gary Cooper played up the significance of these breech-loaders in a far from accurate, but rousing oater that took place during the American Civil War. The experimental weapon, which of course did not exist at the time, proved pivotal in besting conniving Confederates who raided much-needed horses that were being bought for the Union to ship from the West to the heart of the fighting in the East. While this was far-fetched, the Springfield received recognition, albeit for something it never accomplished – but that sometimes proves to be the case in real-life Government after-action reports,

so perhaps the writers of this silver-screen saga can be forgiven their lapse of accuracy.



Once Springfield workers completed manufacture, such as this case of Model 1884 rifles from the Hayes Otoupalik collection, the firearms were crated and transported to garrisons around the nation.
(Photo by William R. O'Donnell)

Another cinematic flight of fantasy, *The Gun That Won The West* (Columbia Pictures 1955), loosely drew on the Fort Phil Kearny and Wagon Box battles. In this hodgepodge of fact and fiction Colonel Carrington (Roy Gordon) faces Chief Red Cloud (Robert Bice) as the Army attempts to construct a string of forts across the heart of Indian country in Wyoming Territory. The only hope for survival is the arrival of promised breech-loaders; although they are issued in time to avert disaster for the whites, they are never depicted in action despite this key element of the plotline in this less-than-memorable movie.



Hundreds of Springfield carbines and rifles stood row after row in Hollywood prop houses during the golden age of cinema. Some were retained essentially in their original form, such as this carbine that appeared in such films as the so-called “cavalry trilogy” teaming actor John Wayne with director John Ford. This former government-issue firearm turned movie prop was used in the classic *She Wore A Yellow Ribbon* (RKO Radio Pictures 1949). (Courtesy Phil Spangenberg)

Thus Tinsel Town cast the Springfield in an occasional starring role or more typically in hundreds and hundreds of other films and television episodes as “extras” that became as much a part of the production as the actors who fired blanks from them. Moreover, thousands of these surplus veterans ended up abroad as foreign arms sales, while quantities of the rifles and carbines were used by hunters of all ages in the United States. Plentiful and cheap, many a would-be nimrod bagged his quarry to bring home some extra meat or relive those exciting yesteryears of the Wild West. Then, too, black-powder shooters and reenactors continue to delight in being transported back in time and come to appreciate the frontier soldier in a vivid, visceral experience that transcends anything portrayed on film.



CONCLUSION

During the quarter-century of the Indian Wars the US Army met the Native Americans in over 1,000 actions, large and small, all across the American West. It fought these wars with peacetime strength and on a peacetime budget, while at the same time it helped shape Native American policy and was involved in numerous other activities that were part and parcel of westward expansion and the changing face of the nation. Along the way the Army developed a military culture of self-sufficiency, albeit without codifying a related doctrine, of experienced small-unit leaders and professionals serving together as part of a brotherhood of arms. Operations against the Native Americans seasoned these veterans and forged a core of experienced leaders, some of whom would serve the republic as it moved onto the world scene at the dawn of the 20th century. Soon after the frontier phase concluded, the US military marched beyond its shores with a war against Spain that marked the nation's debut as an international power.

Throughout most of this era a typically conservative US martial hierarchy clung to the basic Springfield trapdoor design. During various evolutionary stages the weapon remained the rugged, reliable and relatively inexpensive long-arm of the American soldier. Its range, striking power, and accuracy compared favorably with European counterparts of the same era. Moreover, in some respects – because of its simplicity that allowed for easy maintenance and firing, as well as a fairly dependable extractor-ejector combination – the trapdoor was superior to such contemporary arms as the fabled Martini-Henry.

Because of the incredible duration of service over more than a quarter-century, varied history, extensive production, and onscreen presence in film and television, examples of this firearm continue to be sought by an array of enthusiasts. The Springfield remained in service even after the adoption of newer weapons and despite the trend toward smokeless powder and repeating arms abroad. Manufacturers in the United States were slow to develop the new powder, which had several clear advantages. It burned progressively, gradually increasing the velocity of the bullet as it traveled through the barrel. In addition, its increasing pressures permitted a refinement in the rifling that

gave a greater spin to the bullet and produced a higher velocity and a flatter trajectory. Eventually, and in spite of protests from domestic inventors and arms manufacturers, an improved form of the Danish .30-caliber bolt-action Krag-Jørgensen magazine rifle won out over the trapdoor and other weapons from the United States and Europe.

By the early 1890s the final curtain neared for the trapdoor, moving forward from a small number of trial .30-caliber rifles. A number of permutations were fabricated with different types of conventional and rod bayonets, an assortment of sights, and other variations – all of which came to no avail when the concept was aborted once selection of the Krag was finally approved. Production began at Springfield Armory in 1894. Almost immediately changes were suggested, and an improved Model 1896 went into production. Many of the original Model 1892 rifles were returned to the armory for rebuilding to the new specifications. The Model 1896 Krag remained the standard rifle (as did its carbine counterpart) for the Regular Army as it sailed off for the Spanish–American War and subsequent fighting in the Philippines, thereby eventually displacing the venerable trapdoor.



Detail of the lock plate and sight of a Model 1870 rifle in the collection of Hayes Otoupalik. (Photo by William R. O'Donnell)

With that turn of events, the long career of this veteran of the frontier had come to an end. Unlike old soldiers, however, it did not fade away; rather it passed into legend to be memorialized on the silver screen and sported by legions of collectors and black-powder enthusiasts long after its days in combat had passed into the mists of history.

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ABOUT THE AUTHOR

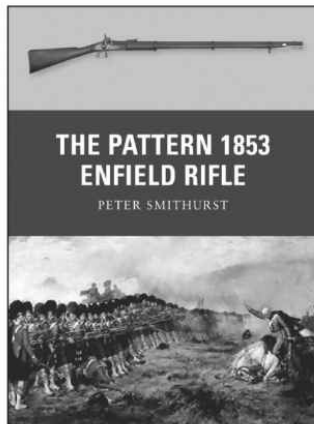
Dr. John P. Langellier specializes in US military history of the Victorian and Edwardian eras. He has been the author, coauthor, or editor of scores of articles and dozens of books including several Osprey titles such as *Second Manassas 1862* (2002) and *US Armed Forces in China 1856–1941* (2009). For 45 years he held various positions as museum director, military historian, as well as working as a consultant to cinema and television productions before retiring in 2015. He now concentrates on research, writing, and serving as a historical consultant. Langellier first fired a Springfield “trapdoor” as a teenager, and still winces when he recalls the bruise the recoil left on his shoulder when he failed to seat the butt plate properly.

ILLUSTRATORS

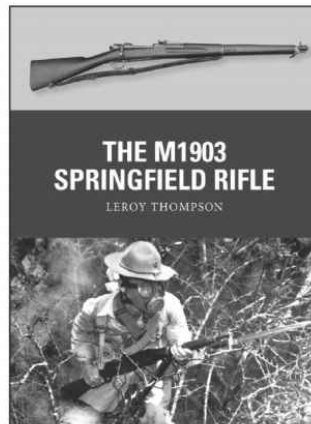
Steve Noon was born in Kent, UK, and attended art college in Cornwall. He's had a life-long passion for illustration, and since 1985 has worked as a professional artist, illustrating over 30 books for Osprey. Steve completed the battlescene illustrations for this book.

Born in Malaya in 1949, Alan Gilliland spent 18 years as the graphics editor of the UK's *Daily Telegraph*, winning 19 awards in that time. He now writes, illustrates, and publishes fiction (<http://www.ravensquill.com>), as well as illustrating for a variety of publishers, architects, and developers (alangillilandillustration.blogspot.com). Alan completed the cutaway illustration for this book.

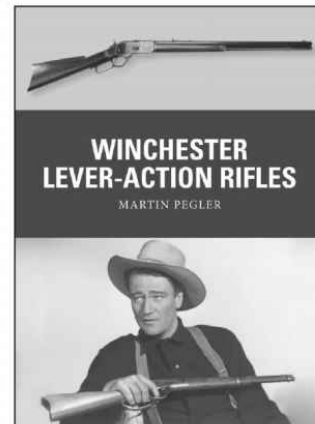
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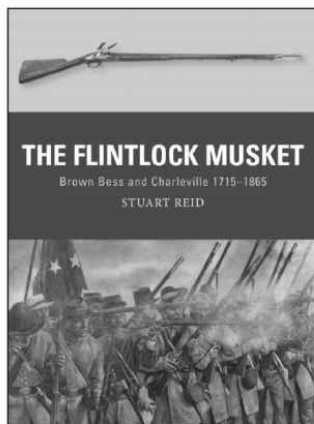
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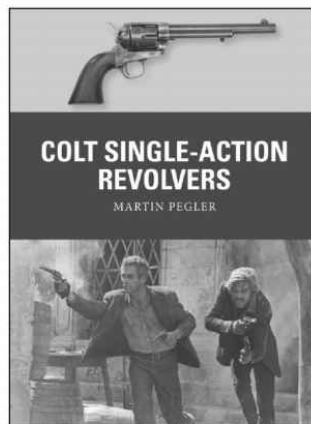
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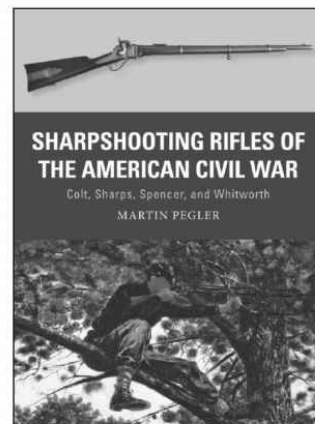
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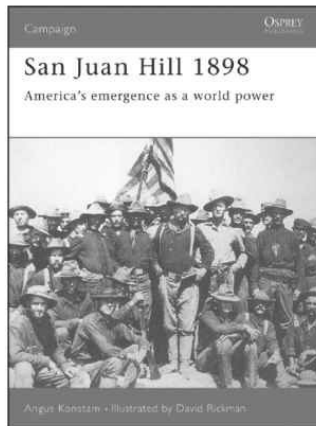


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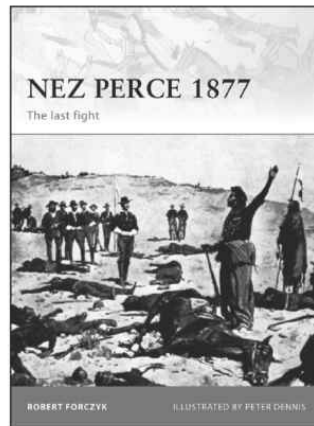


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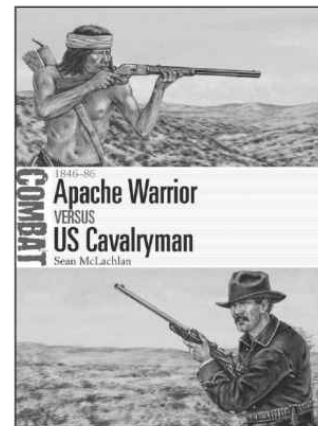
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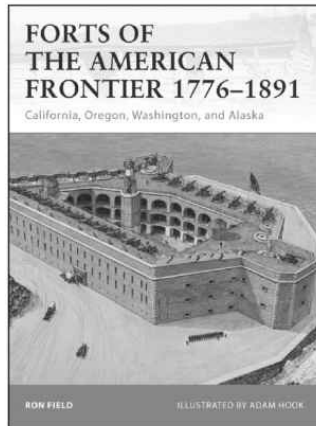
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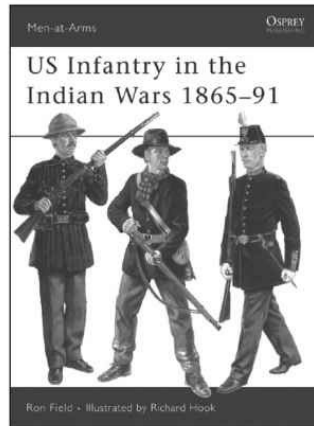
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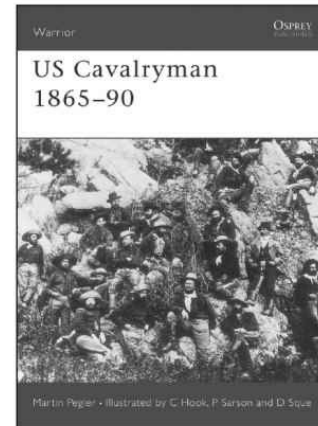
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Bloomsbury Publishing Plc

PO Box 883, Oxford, OX1 9PL, UK

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First published in Great Britain in 2018

This electronic edition published in 2018 by Bloomsbury Publishing Plc.

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A catalog record for this book is available from the British Library.

PB ISBN: 9781472819703

eBook ISBN: 9781472819727

ePDF ISBN: 9781472819710

XML ISBN: 9781472823489

Typeset by PDQ Digital Media Solutions, Bungay, UK

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Acknowledgments

The author could not have completed this study without the assistance of many individuals and organizations, most particularly the patient, expert, and extensive input from Douglas McChristian, Hayes Otoupalik, Phil Spangenberg, Kerry Tiller, and Glen Swanson along with the photographic support of Richard Collins, Nancie Laing, and William R. O'Donnell. Additional appreciation is due to the following: Larry Floyd; Fort Laramie National Historic Site; David T. Hardy; George M. Langellier, Jr.; Kansas State Historical Society; Library of Congress; Michael J. McAfee; Paul Milbury Military Historical Arms and Antiques; National Archives and Records Administration; National Rifle Association (NRA Museums/NRA Museums.com); Springfield Armory National Historic Site; US Army Heritage and Education Center, Carlisle Barracks, Pennsylvania; and Wyoming State Museum, Department of State Parks and Cultural Resources. Photographs not otherwise credited are from the author's collection. Finally, this publication would not have been possible without the generous collaboration of Osprey's ever-professional commissioning editor Nick Reynolds, and the fine artistic talents of Steve Noon (battlescenes) and Alan Gilliland (cutaway).

Editor's note

"F" is a size measure of the grains of powder; "g" stands for grain. The higher the value of "F," the smaller the individual grains are. The largest sporting powder is "1F" or "Fg," while the smallest is "4F" or "FFFFg."

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Title-page image: Non-commissioned officers of the 13th US Infantry in field kit of the mid-1880s; all carry Springfield rifles and wear practical canvas cartridge belts typical of the campaign outfit of the late Indian Wars. (Courtesy National Archives and Records Administration)

Artist's note

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